



Teachers' Perspectives on a Multisystem-Based Collaborative Literacy Ecosystem for Supporting Early Reading Development

Nurul Komariyah¹, Rr. Eko Susetyarini¹, Elly Purwanti¹, Ahksanul In'am¹, Moh. Mahfud Effendi^{1*},
Tijani Ayinla Ahmed²

¹Universitas Muhammadiyah Malang, Indonesia

²Carolina University, United States

*Corresponding Author's Email: mahfud@umm.ac.id

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Abstract

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Early reading is a foundational competency supporting children's academic development and lifelong learning. However, current literacy initiatives often remain school-centred, resulting in limited collaboration among families, communities, and broader educational stakeholders. This study explored how teachers perceive the development of a collaborative, multisystem literacy ecosystem designed to support early reading in elementary schools. Employing a qualitative exploratory design, data were collected from 25 Grade 1 and Grade 2 teachers in Lamongan, East Java, Indonesia, through in-depth interviews, focus group discussions, classroom observations, and document analysis. Using the interactive analysis model of Miles, Huberman, and Saldaña, five interrelated themes emerged: teachers' perspectives on early reading, family support, school literacy culture, community participation, and teachers acting as connectors across educational systems. Drawing on Bronfenbrenner's bioecological perspective, this study proposes a Collaborative Multisystem Literacy Ecosystem that positions teachers as vital links across these environments. The findings provide a conceptual foundation for developing coordinated, sustainable literacy initiatives to advance early reading acquisition.

INTRODUCTION

Background of the Study

Early reading proficiency is foundational to children's literacy and serves as a prerequisite for academic success throughout elementary education. Beyond facilitating language acquisition, foundational reading competence enables cross-disciplinary learning. Children experiencing early reading difficulties frequently struggle to comprehend instructional materials, hindering their broader academic trajectory (Schiefele et al., 2016; Wigfield et al., 2016). Consequently, robust and timely support during the initial years of formal schooling is imperative. The transition to formal schooling is a critical developmental juncture, as foundational language and emergent literacy skills begin to support systematic reading instruction. Investigating the kindergarten-to-Grade 1 transition, Silinskas et al. (2024) found that word reading fluency and listening comprehension strongly predict end-of-year reading comprehension. Their findings indicate that vocabulary and phonological awareness indirectly affect comprehension via listening comprehension, while phonological awareness, letter



knowledge, and rapid automatized naming operate through word reading fluency. This suggests early reading comprehension emerges from a complex interplay of foundational decoding and language skills rather than comprehension instruction alone.

Divergences in foundational reading skills can emerge and compound rapidly during Grade 1. In a longitudinal study of 253 Icelandic first-graders, Larimer et al. (2025) tracked growth in letter-sound, nonsense-word, sight-word, and oral reading fluency. Their results demonstrated a widening gap between at-risk students and their peers over the academic year, underscoring the necessity of early identification and targeted intervention during the initial stages of formal schooling. This developmental imperative extends into Grade 2, a period demanding increased reading accuracy, fluency, and comprehension. Observing 52 German second-grade classrooms, Peters et al. (2022) found that reading instruction remained predominantly teacher-centered, frequently lacking the evidence-based practices necessary for competency development. Their study highlighted the interdependence of reading components and the need for responsive, student-centered instruction. Corroborating this, Ardington et al. (2021) demonstrated a strong association between oral reading fluency and comprehension in early grades, particularly at lower fluency thresholds. Collectively, these findings emphasize that sustained attention to both foundational skills and instructional quality is essential during early elementary education.

While the Indonesian government has instituted frameworks such as the National Literacy Movement (Gerakan Literasi Nasional [GLN]) and the School Literacy Movement (Gerakan Literasi Sekolah [GLS]), these initiatives remain largely confined to classroom instruction and school-bound activities. Although they establish an institutional baseline for promoting a reading culture, a purely school-centric approach overlooks the broader ecological factors shaping literacy. Children's reading acquisition is profoundly influenced by the home literacy environment, community engagement, resource accessibility, and macro-level educational policies. Relying solely on teacher-directed instruction is insufficient; cultivating early reading demands coordinated collaboration among families, schools, communities, and policymakers to forge an integrated literacy ecosystem (De La Rie et al., 2021; Liansari et al., 2021; Marmoah et al., 2022). Such integration bridges children's experiences across multiple spheres, providing cohesive developmental support.

The literacy ecosystem model conceptualises reading development as a dynamic process resulting from children's continuous interactions with interconnected environmental contexts, including the home literacy environment, school culture, community resources, and family-school partnerships. Rather than viewing literacy as an isolated academic activity, the model emphasises reciprocal relationships among family practices, resources, social environments, parental beliefs, school support, and cultural values (Cheung et al., 2021; Gregoriadis & Evangelou, 2022). This perspective is grounded in Bronfenbrenner's Bioecological Theory, which explains development through sustained interactions between individuals and multiple environmental systems (Bronfenbrenner & Morris, 2007). Within the Process, Person, Context, and Time (PPCT) framework, proximal processes serve as key mechanisms driving developmental outcomes (Navarro & Tudge, 2023; Tudge et al., 2016). Development, moreover, occurs across interconnected microsystems, mesosystems, exosystems, and macrosystems, which encompass, respectively, family and teachers, family-school relationships, school policies and parental employment, and broader cultural and societal values (El Zaatari & Maalouf, 2022). On this basis, the Collaborative Multisystem Literacy Ecosystem is conceptualised as a synergistic and dynamically interdependent network in which interactions across contexts can either facilitate or constrain children's reading development.

Problem of the Study

In the Indonesian context, systemic challenges in reading achievement highlight the urgent need for comprehensive literacy interventions. According to the Organisation for Economic Co-operation and Development (OECD, 2023), only 25% of Indonesian students achieved Level 2 or above in reading literacy in the 2022 Programme for International Student Assessment (PISA), starkly contrasting the OECD average of 74%. This minimum proficiency benchmark requires students to identify main ideas in moderate-length texts, locate information using explicit criteria, and reflect on text purpose (OECD, 2023). With nearly three-quarters of Indonesian students performing below this threshold, the educational system faces significant hurdles in cultivating functional reading competencies. Recent

scholarship reiterates the necessity for context-sensitive, primary-level reading interventions (Gildore et al., 2025). Addressing these deficits requires strengthening foundational literacy through supportive learning environments that transcend traditional classroom boundaries (Suras et al., 2025).

Although previous studies have demonstrated that families, schools, and communities all contribute to early reading development, literacy initiatives in educational practice continue to be implemented in a fragmented manner. Research has shown that children's literacy development is influenced by literacy experiences across home and school environments, as well as by the quality of interactions and resources available within these contexts (De La Rie et al., 2021; Cheung et al., 2021). Family literacy practices can provide important support for children's language and reading development, while school-based literacy practices and institutional conditions contribute to the continuity and quality of children's literacy experiences (Marmoah et al., 2022; Wirth et al., 2022). However, literacy programs may still primarily emphasize school-based activities, while the roles of families, communities, and educational policies remain insufficiently integrated into a sustainable collaborative system. Consequently, responsibility for fostering early reading is often placed predominantly on teachers and schools, despite evidence that children's literacy development is shaped by interactions among multiple environmental systems (Gregoriadis & Evangelou, 2022; Liansari et al., 2021). This fragmentation creates a need to understand how these different literacy-supporting environments can be connected and coordinated to provide more coherent support for children's early reading development.

Teachers occupy a strategic position within this process because they work directly with students during formal early reading instruction while also communicating with families, coordinating school literacy activities, engaging community resources, and translating educational policies into classroom practice. Although parents play an essential role in establishing children's literacy experiences at home, teachers were selected as the primary informants in this study because they have direct experience observing children's reading development in the classroom and are positioned to interact with multiple stakeholders across the literacy ecosystem. Their perspectives therefore provide insight into how literacy support is coordinated across school, home, community, and policy contexts, rather than being limited to a single environment. Previous research has highlighted the importance of teacher involvement and collaboration with families and the wider community in developing sustainable literacy practices in elementary schools (de la Rie et al., 2021; Marmoah et al., 2022).

Research's State of the Art

The family, as the primary microsystem, establishes the foundation for emergent literacy through daily interactions, shared reading, textual resources, and meaningful parent–child engagement. Evidence indicates that high-quality home literacy environments support subsequent reading development, foundational literacy, cognitive development, language competence, socio-emotional regulation, and school readiness (Georgiou et al., 2021; Vanbecelaere et al., 2021; Wirth et al., 2022). Effective family involvement, therefore, requires not only material resources but also consistent, meaningful, and emotionally supportive literacy practices, reinforced through strong family–school partnerships. Schools function as central nodes within the ecosystem by providing systematic instruction and by fostering a sustainable literacy culture through effective management, visionary leadership, adequate resources, and stakeholder partnerships (Marmoah et al., 2022). Within this ecosystem, teachers play a strategic role as systemic mediators who identify students' developmental needs, guide families, coordinate resources, and connect classroom learning with community support and broader educational policies; their active engagement with families and communities is essential for sustaining school literacy cultures (Marmoah et al., 2022). Accordingly, teachers can be conceptualised as Collaborative Literacy Ecosystem Connectors who facilitate shared responsibility and coordinate multisystem collaboration to support children's early reading development.

Recent research on early reading development has shifted from an individual-centered perspective toward a broader understanding that emphasizes the influence of children's learning environments on literacy development. Early reading development encompasses the acquisition and

gradual integration of foundational skills, including phonological awareness, letter knowledge, word recognition, reading fluency, vocabulary, and comprehension, which develop progressively during the transition into formal schooling. Recent evidence indicates that these foundational skills are closely associated with subsequent reading achievement, and that differences in early reading development can emerge rapidly during the first years of elementary education (Larimer et al., 2025; Silinskas et al., 2024). At the same time, research has demonstrated that children's reading development is influenced by experiences beyond formal instruction, particularly the quality of literacy interactions and resources available in their home environments (Zhang et al., 2024). Thus, early reading development is increasingly understood not merely as the acquisition of technical reading skills but as a developmental process involving the interaction of cognitive, linguistic, motivational, and environmental factors. This perspective establishes the first dimension of the present study by positioning early reading development as the central outcome that requires sustained support across children's learning environments.

This section introduces the second dimension of the present study, which extends this understanding by examining literacy development through interconnected learning environments rather than isolated educational settings. The home literacy environment, for example, includes literacy-related practices, parental interactions, access to reading materials, and children's opportunities to engage with print and language, while school literacy environments encompass instructional practices, literacy resources, school culture, and relationships among teachers and students (Zhang et al., 2024; Claes et al., 2024). Research also indicates that literacy experiences may be strengthened when families and schools establish complementary practices that provide children with continuity between home and school learning (Pambudi & Fajrin, 2024). Building on this broader ecological understanding, the concept of a Multisystem-Based Collaborative Literacy Ecosystem, as used in this study, refers to a coordinated network of families, schools, communities, and policymakers whose literacy-related practices and resources interact to support children's early reading development. Its key characteristic is therefore not simply the presence of multiple literacy environments, but the coordination, communication, continuity, and mutual reinforcement among those environments. From this perspective, literacy support becomes more sustainable when the different systems surrounding children work toward shared literacy goals rather than operating through isolated interventions.

Teachers occupy a distinctive position because they directly observe children's reading development while simultaneously interacting with multiple educational stakeholders. Teachers can identify students' literacy needs through classroom interactions, communicate developmental information to parents, coordinate literacy activities within schools, and connect classroom learning with resources available beyond the classroom. Their role therefore extends beyond delivering reading instruction to include facilitating communication, coordinating literacy practices, and supporting continuity between children's learning experiences across settings. Research on home–school partnerships has shown that such collaboration is a dynamic process requiring communication and coordination among teachers, parents, and other professionals (Çelik & Tomris, 2024). In this study, these functions are conceptualized through the role of Collaborative Literacy Ecosystem Connectors, referring to teachers who facilitate connections among children, families, schools, communities, and relevant educational initiatives. This role positions teachers as mediators and coordinators within the literacy ecosystem rather than as the sole actors responsible for children's reading development.

Gap Study and Objective

Although recent studies have increasingly emphasized the importance of literacy environments in fostering early reading development, previous research has generally examined families, schools, or communities as separate influences rather than as interconnected components of a broader educational system. Studies of the home literacy environment have demonstrated that children's literacy experiences at home were associated with later reading and writing development (Georgiou et al., 2021; Bigozzi et al., 2023; Esmaeeli, 2024). Research on parental involvement also found that home- and school-based involvement were dynamically related to children's reading competence during the first year of elementary school (Bonanati & Rubach, 2022). Other studies showed that classroom environments and school conditions influenced children's literacy development and reading

achievement (Rance et al., 2023; Peters et al., 2022), while research on home–school relationships highlighted the importance of collaboration between families and educators in supporting children's learning (Stanley & Kuo, 2022; Çelik & Tomris, 2024). Although these studies collectively demonstrated the contribution of different educational environments, they largely focused on individual contexts or specific forms of partnership rather than examining how families, schools, communities, and educational policies could operate as a coordinated literacy ecosystem. Consequently, existing evidence has not yet fully explained how interactions among multiple systems could be coordinated over time to provide continuous and mutually reinforcing support for children's early reading development.

Three interrelated gaps therefore remain in the literature. First, an empirical gap concerns the limited qualitative evidence on teachers' experiences and perspectives in coordinating literacy support across multiple educational systems, particularly in relation to early reading development in Grades 1 and 2. Previous qualitative and empirical studies have examined teachers' practices, home literacy environments, parental involvement, and family–school relationships, but relatively little attention has been given to how teachers themselves experienced the process of connecting these contexts to support children's early reading development (Bonanati & Rubach, 2022; Çelik & Tomris, 2024; Gregoriadis & Evangelou, 2022). Second, a theoretical gap concerns the limited application of Bronfenbrenner's Process–Person–Context–Time (PPCT) framework to explain collaborative literacy ecosystems. Although Bioecological Theory has provided a foundation for understanding development through interactions among interconnected contexts, its application to a multisystem literacy ecosystem involving families, schools, communities, and policy environments remains underdeveloped (Bronfenbrenner & Morris, 2007; Tudge et al., 2016; Tong & An, 2024). In response to these gaps, this study aimed to explore teachers' perspectives on developing a collaborative multisystem literacy ecosystem to support early reading development in elementary schools. Specifically, the study sought to: (1) examine teachers' perspectives on early reading development and the factors that support children's literacy experiences; (2) explore how families, schools, and communities contribute to children's early reading development; and (3) examine teachers' roles in connecting and coordinating these educational systems to establish a collaborative and sustainable literacy ecosystem.

METHOD

Type and Design

This study employed a qualitative approach using an exploratory research design to investigate teachers' perspectives on the development of a collaborative multisystem literacy ecosystem for supporting early reading development in elementary schools. A qualitative approach was considered appropriate because it enables an in-depth exploration of participants' experiences, perceptions, and interpretations within their natural settings, thereby providing a comprehensive understanding of the phenomenon under investigation (Creswell & Poth, 2018). An exploratory qualitative design was adopted because research examining collaborative multisystem literacy ecosystems from teachers' perspectives remains limited. More specifically, the design was appropriate for developing an initial conceptual understanding of how teachers perceive, interpret, and describe the relationships and collaborative processes among families, schools, and communities in supporting early reading development. The study did not seek to capture the essence of lived experience as in phenomenological inquiry, generate a formal theory as in grounded theory, or examine a bounded case as in case study research. Instead, the exploratory approach provided flexibility to identify emerging patterns, relationships, and dimensions of multisystem collaboration that could inform the conceptualization of a collaborative and sustainable literacy ecosystem. This design facilitated a deeper investigation of teachers' perceived needs, challenges, and collaborative practices in supporting early reading development (Stebbins, 2001).

Data and Data Sources

This qualitative study explored teachers' experiences, perceptions, and interpretations regarding the development of a collaborative, multisystem literacy ecosystem for early reading. Data collection focused on four core domains: (1) early reading literacy practices; (2) collaboration among

schools, families, and communities; (3) challenges encountered in establishing a literacy ecosystem; and (4) strategies for strengthening stakeholder collaboration. Examining these domains provided a comprehensive understanding of how early reading support is experienced and coordinated across diverse educational settings. Consistent with the study's exploratory objective, particular attention was given to teachers' accounts of their daily interactions with students, families, colleagues, and community resources. Primary data were gathered from 25 Grade 1 and Grade 2 teachers across eight purposively selected public elementary schools in Lamongan, East Java, Indonesia. Participants met three specific inclusion criteria: (1) a minimum of two years of experience teaching early reading; (2) active involvement in school literacy programs; and (3) voluntary willingness to participate. Teachers served as primary informants due to their direct expertise in early reading instruction and their central role in interfacing with students, families, and other literacy stakeholders. This purposive sampling strategy ensured the collection of information-rich data highly relevant to the study's central objectives (Patton, 2015).

Table 1 outlines the professional characteristics of the participating teachers. Because all participants taught at public elementary schools located in Lamongan, school type and location have been excluded from the table for brevity but remain constant across the sample. Pseudonyms (P01–P25) are used throughout the study to protect participant anonymity. The purposeful variation in overall teaching experience and years dedicated specifically to early reading instruction provided a broad spectrum of professional perspectives.

Table 1. Characteristics of Participants

Participant Code	Teaching Experience	School Type	School Location	Years Teaching Early Reading
P01	9 years	Public	Lamongan	6 years
P02	12 years	Public	Lamongan	8 years
P03	7 years	Public	Lamongan	5 years
P04	15 years	Public	Lamongan	10 years
P05	10 years	Public	Lamongan	7 years
P06	8 years	Public	Lamongan	6 years
P07	11 years	Public	Lamongan	8 years
P08	6 years	Public	Lamongan	4 years
P09	14 years	Public	Lamongan	9 years
P10	10 years	Public	Lamongan	7 years
P11	13 years	Public	Lamongan	9 years
P12	7 years	Public	Lamongan	5 years
P13	16 years	Public	Lamongan	12 years
P14	9 years	Public	Lamongan	6 years
P15	12 years	Public	Lamongan	8 years
P16	8 years	Public	Lamongan	5 years
P17	10 years	Public	Lamongan	7 years
P18	11 years	Public	Lamongan	8 years
P19	6 years	Public	Lamongan	4 years
P20	14 years	Public	Lamongan	10 years
P21	9 years	Public	Lamongan	6 years
P22	12 years	Public	Lamongan	9 years
P23	7 years	Public	Lamongan	5 years
P24	15 years	Public	Lamongan	11 years
P25	10 years	Public	Lamongan	7 years

Secondary data comprised institutional documents related to literacy implementation at the participating schools. These included school literacy program guidelines, Grade 1 and 2 reading instructional materials, and formalized school literacy policies. These documents provided critical contextual information regarding how early reading practices are structurally organized within the

schools. Furthermore, they served as triangulating evidence, anchoring the teachers' personal accounts and the researchers' observations within the broader institutional framework.

Data Collection Technique

Data were collected through four complementary techniques, namely semi-structured in-depth interviews, focus group discussions (FGDs), classroom observations, and document analysis, in order to obtain comprehensive evidence from diverse perspectives and educational settings relevant to the development of a Multisystem-Based Collaborative Literacy Ecosystem (Creswell & Poth, 2018). In-depth interviews were conducted with all 25 Grade 1 and Grade 2 teachers, using an interview guide, based on the research objectives, that addressed their experiences in early reading instruction, perceptions of children's literacy development, challenges in supporting early readers, and collaboration with families, schools, communities, and other stakeholders. With informed consent, the interviews were audio-recorded and transcribed verbatim. FGDs with the same 25 teachers were conducted to validate and extend the interview findings by exploring emerging issues, comparing experiences, identifying collaborative strategies, and examining shared and divergent perceptions of early reading practices. Classroom observations were conducted in 10 Grade 1 and Grade 2 classrooms to examine early reading instruction, teacher–student interactions, responses to students' literacy needs, literacy engagement, and the availability and use of literacy resources. Document analysis of school literacy programmes, instructional materials, lesson plans, and relevant records was used to complement and verify evidence from the other methods. To strengthen trustworthiness, methodological triangulation involved comparing evidence across interviews, FGDs, observations, and documents, while data source triangulation involved comparing information across teachers, educational settings, and forms of evidence; areas of convergence and divergence were examined before interpretations were developed, thereby enhancing the credibility and consistency of the findings (Lincoln & Guba, 1985; Patton, 2015).

Data Analysis

Data were analysed using the interactive model developed by Miles et al. (2019), which conceptualises qualitative analysis as an iterative process occurring throughout data collection and interpretation. This approach facilitated continuous analysis through three interconnected stages: data condensation, data display, and conclusion drawing and verification. The first stage, data condensation, involved selecting, organising, simplifying, and focusing the data from interviews, FGDs, observations, and document analysis through three successive coding phases following Saldaña (2021): open coding to identify initial concepts related to early reading practices, collaboration, challenges, and support strategies; axial coding to compare and group related codes into broader categories and themes reflecting interactions among educational stakeholders and learning environments; and selective coding to integrate these categories into a coherent conceptual understanding of teachers' perspectives on the Multisystem-Based Collaborative Literacy Ecosystem. The second stage, data display, involved organising coded data into thematic matrices, analytical tables, and descriptive narratives to identify relationships among themes and to map them onto the ecological systems of Bronfenbrenner's Bioecological Theory. Themes concerning teacher–student interactions, classroom literacy practices, and family involvement were interpreted as microsystem processes; coordination among teachers, families, schools, and communities as mesosystem processes; institutional support, school literacy policies, and community resources as exosystem influences; broader educational policies, cultural expectations, and societal views of literacy as macrosystem influences; and change, continuity, and sustainability of literacy collaboration over time as chronosystem influences. This analytical mapping enabled the researchers to examine both the contributions of individual educational systems to early reading development and the ways in which interactions among systems shaped teachers' perspectives on collaborative literacy support.

The final stage, conclusion drawing and verification, focused on interpreting relationships among the identified themes and ecological systems, and on continuously verifying emerging conclusions through methodological and data source triangulation. The analysis examined interactions across systems, including how school practices influenced family participation, how family involvement connected with classroom activities, and how institutional or community support facilitated

collaboration among educational stakeholders. Emerging interpretations were repeatedly compared across interviews, FGDs, classroom observations, and documents. Inconsistencies or alternative interpretations were examined by returning to the relevant data and comparing evidence across participants and sources before final interpretations were established, thereby strengthening the credibility and trustworthiness of the findings (Lincoln & Guba, 1985). The final conceptual framework was developed by integrating themes with their corresponding ecological systems and cross-system interaction patterns, based on convergent evidence from all four data sources, with particular emphasis on teachers' roles in connecting and coordinating families, schools, communities, and broader institutional contexts. The resulting framework represented teachers' perspectives on how coordinated relationships across these systems could support the development of a Multisystem-Based Collaborative Literacy Ecosystem to strengthen early reading development in elementary schools.

RESULTS

Following the interactive analytical framework of Miles et al. (2020), qualitative analysis of in-depth interviews, focus group discussions (FGDs), classroom observations, and document analysis generated five interrelated themes. These themes represent teachers' perspectives on developing a collaborative, multisystem literacy ecosystem to support early reading in elementary schools: (1) teachers' perspectives on early reading; (2) family support as the foundation of the literacy ecosystem; (3) school literacy culture; (4) community participation in strengthening the literacy ecosystem; and (5) teachers as connectors across multiple educational systems. Collectively, the findings indicate that successful early reading development extends beyond classroom instruction and is shaped by the dynamic interaction of multiple educational environments. The results of the thematic coding process are summarized in Table 2.

Table 2. Summary of Thematic Analysis

Open Coding	Axial Coding	Main Theme
Reading as the foundation of all subjects; reading as the basis for learning; reading difficulties hinder learning	Teachers' perceptions of early reading	Teachers' Perspectives on Early Reading
Parents support reading at home; teacher–parent communication; family reading habits	Family literacy support	Family Support as the Foundation of the Literacy Ecosystem
School Literacy Movement; reading corners; school library; daily reading routines	School literacy practices	School Literacy Culture
Community reading centers; village libraries; community support; local government involvement	Community literacy support	Community Participation
Teacher–parent coordination; school–community collaboration; implementation of literacy policies	Multisystem collaboration	Teachers as Connectors Across Multiple Systems

Teachers' Perspectives on Early Reading

The analysis revealed that all participating teachers regarded early reading as the fundamental competence underpinning students' academic success in elementary education. Teachers perceived early reading not merely as the mechanical ability to recognize letters, words, and simple sentences, but as the essential foundation enabling students to comprehend materials across the entire curriculum. The coding process identified three interrelated categories within this theme (Table 3).

Table 3. Teachers' Perspectives on Early Reading

Category	Main Findings
Reading as the foundation of learning	Reading is viewed as the basis for understanding all school subjects.
Reading as a prerequisite for independent learning	Reading competence enables students to learn independently and strengthens their confidence.
Shared responsibility	Successful early reading depends on collaboration among schools, families, and communities.

Teachers understood early reading as an enabling competence that provides children with vital access to classroom learning and broader educational activities. During interviews, teachers explicitly linked reading difficulties to a student's inability to follow instruction and engage with learning materials across distinct subjects.

"When children can read well, they find it much easier to follow lessons across all subjects. In contrast, reading difficulties tend to affect learning in almost every subject." (P1)

This account illustrates how early reading is perceived as a universal foundation for broader learning experiences rather than a siloed literacy skill confined to language arts. FGDs reinforced this perspective, with teachers collectively emphasizing the critical need for continuous, targeted support for children experiencing early reading difficulties. Classroom observations further validated these assertions; students with emerging reading difficulties required significantly more frequent teacher assistance when navigating written materials and classroom tasks. The convergence of these data sources suggests that teachers' perceptions of early reading are deeply grounded in their practical, everyday experiences of supporting children in the classroom. Crucially, teachers did not perceive early reading development as an exclusively school-based responsibility. Instead, their accounts actively connected children's classroom experiences with literacy practices at home and in the wider community.

"Schools spend only a few hours each day with children. Once they return home, parents play a crucial role in encouraging regular reading habits." (P2)

"In my opinion, developing children's reading skills is not solely the teachers' responsibility. Parents, the surrounding community, and even the government all have important roles in ensuring that children have opportunities to develop their reading skills wherever they are." (P3)

These perspectives align with FGD outcomes, where teachers highlighted consistent school-family communication as vital for maintaining continuity in children's literacy experiences. Classroom observations indicated that teachers consistently integrated early reading activities into daily instruction through read-aloud sessions, word cards, and classroom reading corners. However, the frequency and quality of these activities varied across classrooms, contingent upon the availability of reading materials, specific student learning needs, and the level of institutional support. Document analysis corroborated these observations, revealing that while all participating schools had formally implemented literacy programs under the national School Literacy Movement (GLS), actual implementation strategies and stakeholder engagement levels differed significantly among institutions. Overall, this theme demonstrates that while teachers perceive early reading as the cornerstone of academic success, they recognize it as a collective responsibility requiring coordinated, cross-system support. This foundational understanding sets the stage for the subsequent themes, which explore how families, schools, communities, and teachers collaboratively sustain this literacy ecosystem.

Family Support as the Foundation of the Literacy Ecosystem

The analysis identified family support as the cornerstone of a Multisystem-Based Collaborative Literacy Ecosystem for promoting early reading development. Teachers consistently emphasized that the family's contribution extends beyond assisting children with schoolwork to include establishing reading habits, providing appropriate reading materials, maintaining communication with teachers, and motivating children to engage in regular reading activities. The coding process generated four

interrelated categories: (1) home reading habits, (2) parental assistance, (3) parent–teacher communication, and (4) the family literacy environment (Table 4).

Table 4. Family Support as the Foundation of the Literacy Ecosystem

Category	Main Findings
Home reading habits	Parents encourage children to read before or after daily learning activities.
Parental assistance	Parents support children during reading practice and homework completion.
Parent–teacher communication	Regular communication helps monitor students' reading progress.
Family literacy environment	Reading materials and a supportive home atmosphere encourage literacy development.

Teachers reported that students who regularly practiced reading at home generally demonstrated faster progress in early reading than those whose reading practice occurred only at school. Simple family activities, such as reading bedtime stories, sharing reading time, or providing age-appropriate books, were considered effective in fostering both reading interest and reading competence. Teachers also emphasized that parental involvement enhanced children's motivation because students felt supported and encouraged throughout the learning process.

Nevertheless, teachers observed considerable variation in family involvement. While some parents actively guided their children's reading and maintained regular communication with teachers, others faced challenges related to work commitments, limited reading habits at home, or insufficient knowledge of how to support early reading. These differences contributed to unequal reading progress among students, requiring teachers to provide additional assistance to children needing more intensive support.

The following interview excerpts illustrate these perspectives:

- P1:** *"Children who are accustomed to reading at home usually recognize words more quickly and understand texts better than their peers."*
- P2:** *"Regular communication with parents helps us monitor children's progress at home. When difficulties arise, we can work together to find appropriate solutions."*
- P3:** *"Not all parents have enough time to support their children's reading. Therefore, schools should provide practical guidance so that parents can continue assisting their children, even through simple activities."*

Classroom observations indicated that students receiving strong family support were generally more confident when reading aloud and more actively engaged with classroom reading corners and school library resources. Document analysis further revealed that several schools had established teacher–parent communication books and implemented family-oriented literacy initiatives, including home reading programs and daily reading logs. However, these initiatives were not implemented consistently across all participating schools, resulting in varying levels of family participation. Overall, the findings highlight that families constitute the primary foundation of children's literacy ecosystem. Teachers emphasized that consistent reading habits at home, active parental involvement, sustained communication between families and schools, and supportive home literacy environments collectively strengthen early reading development. These findings further suggest that literacy development cannot rely solely on schools but requires active family engagement, given that families serve as children's first and most influential learning environment.

School Literacy Culture

The findings indicate that teachers viewed school literacy culture as a key component in strengthening early reading development. Rather than being limited to the implementation of the School Literacy Movement (GLS), school literacy culture was understood as encompassing regular reading practices, literacy-rich learning environments, and a shared commitment among school members to fostering students' reading habits. Four major categories emerged from the analysis: (1) reading habituation, (2) literacy facilities, (3) literacy-integrated instruction, and (4) school policy support (Table 5).

Table 5. School Literacy Culture

Category	Main Findings
Reading habituation	Schools encourage daily reading activities before lessons begin.
Literacy facilities	Reading corners, libraries, and literacy resources support learning.
Literacy-integrated instruction	Teachers incorporate reading activities across different subjects.
School policy support	Literacy initiatives are reinforced through sustainable school policies and programs.

Teachers explained that regular reading routines helped students become familiar with a variety of reading materials while fostering positive reading habits from an early age. Activities such as pre-class reading, read-aloud sessions, classroom reading corners, and scheduled visits to the school library were commonly implemented to encourage students' engagement with books beyond formal classroom instruction. Teachers further emphasized that a literacy-supportive school environment plays a crucial role in sustaining these practices. School libraries, classroom reading corners, literacy-based instructional media, and age-appropriate reading materials were considered essential in stimulating children's interest in reading. However, several participants acknowledged that the availability of attractive and developmentally appropriate books remained a challenge in some schools, particularly those with limited educational resources.

Participants described these experiences as follows:

P1: *"We encourage students to read for about fifteen minutes before lessons begin so that reading becomes part of their daily routine."*

P2: *"The classroom reading corner is very helpful because children can immediately choose books they enjoy without waiting for their library schedule."*

P3: *"Our literacy program is running well, but we still need a wider selection of age-appropriate storybooks to keep children interested in reading."*

Observational data showed that all participating schools had implemented literacy activities as part of their daily educational practices, although the approaches varied. Some schools consistently allocated dedicated reading time before lessons, whereas others integrated reading activities directly into classroom instruction. Document analysis confirmed that literacy initiatives had been incorporated into school development plans, literacy schedules, and supporting programs, including reading competitions, library visits, and classroom reading corners. Nevertheless, the effectiveness of these initiatives depended largely on the availability of literacy resources, school leadership, and teachers' commitment to fostering a literacy culture. Overall, teachers viewed school literacy culture as a vital component of this ecosystem. They emphasized that successful literacy development depends not only on the existence of literacy programs but also on their consistent implementation, adequate educational resources, and the collective commitment of the entire school community. These findings position schools as environments that reinforce literacy experiences initiated within families while connecting children to broader literacy opportunities within the community.



Figure 1. Documentation of Literacy Activities in Participating Schools

Figure 1 illustrates various school-based literacy activities designed to foster reading habits among students. The images depict students participating in indoor reading sessions in small groups, joining an outdoor communal reading activity as part of the school's literacy program, and exploring a diverse selection of books under the guidance and support of their teachers.

Community Participation

The findings indicate that teachers viewed community participation as an essential component of the literacy ecosystem, extending children's literacy experiences beyond the home and school environments. Communities were perceived as playing an important role in providing supportive learning spaces, expanding access to reading materials, and promoting reading habits through community-based literacy initiatives. The thematic analysis identified four major categories: (1) community literacy facilities, (2) community involvement in literacy activities, (3) local government support, and (4) school–community partnerships (Table 6).

Table 6. Community Participation in Supporting the Literacy Ecosystem

Category	Main Findings
Community literacy facilities	Village libraries, community reading centers, and public reading spaces provide additional learning opportunities for students.
Community involvement	Community organizations organize literacy activities that encourage children's reading engagement.
Local government support	Village governments and local agencies support literacy through facilities and community-based programs.
School–community partnerships	Schools collaborate with community organizations to strengthen students' literacy development.

Teachers explained that community literacy facilities provide valuable opportunities for students to engage with reading materials beyond school hours. Village libraries, community reading centers, neighborhood reading spaces, and shared reading activities were regarded as important resources for fostering sustainable reading habits. According to the participants, communities that promote a strong reading culture expose children to broader learning experiences and reduce their dependence on school-based literacy resources alone. Despite these positive contributions, teachers observed considerable variation in the level of community participation. In some areas, community organizations and local governments actively supported children's literacy by organizing reading programs, providing books, and collaborating with schools on literacy initiatives. In other areas, however, such collaboration remained occasional and fragmented, limiting its impact on early reading development. Teachers therefore emphasized the need to strengthen partnerships between schools and community organizations so that existing literacy resources could be utilized more effectively.

Participants expressed these views as follows:

- P1:** *"When there is a community reading center or a village library nearby, children are usually more interested in reading because they have another place to learn besides school."*
- P2:** *"Some community organizations regularly organize shared reading activities, but not every school has the opportunity to collaborate with them on a consistent basis."*
- P3:** *"I believe the community has tremendous potential to support schools. What we need is better coordination so that literacy activities can be implemented in a more sustainable way."*

Observational data showed that several schools had established partnerships with regional libraries, community reading centers, and social organizations to conduct literacy activities, including reading visits, reading assistance programs, and book donation initiatives. However, the frequency and scope of these collaborations varied considerably across schools and often depended on local initiatives. Document analysis further revealed that community partnerships had not yet been systematically integrated into all school literacy programs, although some schools had incorporated collaborative activities with village governments, libraries, and literacy organizations into their annual literacy plans. Overall, the findings demonstrate that communities play a significant role in extending students' literacy experiences beyond the family and school contexts. Teachers emphasized that maximizing community contributions requires well-planned and sustainable partnerships that enable schools and communities to share literacy resources effectively. These findings further suggest that a

Multisystem-Based Collaborative Literacy Ecosystem depends not only on the contributions of individual stakeholders but also on their capacity to establish coordinated and complementary partnerships that support early reading development.

Teachers as Connectors Across Multiple Systems

The analysis identified teachers as central connectors linking the multiple systems that influence children's early reading development. Rather than functioning only as classroom instructors, teachers described and demonstrated roles that extended across family engagement, school literacy coordination, community partnerships, and the implementation of educational policies. These roles involved communicating with parents, coordinating literacy activities within schools, connecting schools with community literacy resources, and translating policy expectations into classroom practices. The thematic analysis generated five interrelated categories: (1) family engagement, (2) school literacy coordination, (3) community partnerships, (4) educational policy implementation, and (5) multisystem integration. Taken together, these categories indicate that the connector role is not a separate activity but an integrative function through which teachers connect otherwise distinct literacy-supporting environments around children's early reading development (Table 7).

Table 7. Teachers as Connectors Across Multiple Systems

Category	Main Findings
Family engagement	Teachers maintain communication with parents and provide guidance for supporting reading activities at home.
School literacy coordination	Teachers coordinate literacy programs and integrate reading activities into classroom instruction.
Community partnerships	Teachers collaborate with libraries, literacy organizations, and community institutions.
Educational policy implementation	Teachers translate literacy policies into classroom practice.
Multisystem integration	Teachers connect families, schools, communities, and educational policies into an integrated literacy ecosystem.

The findings suggest that teachers performed the connector role through several complementary forms of coordination rather than through a single mechanism. At the family level, teachers maintain communication with parents to reinforce reading practices at home and monitor children's progress. At the school level, they coordinated literacy activities, encouraged the use of libraries and classroom reading corners, and worked with colleagues and school leaders to sustain literacy practices. At the community level, teachers connected students with libraries, community reading centers, and literacy organizations that could provide additional reading opportunities and resources. At the policy level, teachers translated broader literacy expectations into classroom and school-level practices. These different forms of engagement show that teachers operated across system boundaries, linking resources, expectations, and practices that were distributed across children's learning environments.

The data also indicated that collaboration was not uniform across schools. The intensity and mechanisms of coordination with families and community partners varied according to the available institutional support and existing partnership arrangements. While some schools maintained regular communication with parents and established relationships with external literacy resources, the documentary evidence showed that mechanisms for coordinating with families and community partners were not equally structured across schools. This variation suggests that the presence of literacy programs alone does not automatically produce an integrated Multisystem-Based Collaborative Literacy Ecosystem. Rather, the effectiveness of multisystem collaboration depends on how consistently teachers and other stakeholders communicate, coordinate activities, and connect available resources to children's learning needs.

The connector role also involved negotiating different forms of responsibility. Teachers recognized that schools could not sustain children's literacy development independently because children's reading experiences continued beyond school hours. At the same time, family and

community involvement required coordination to ensure that literacy activities outside school remained aligned with children's learning needs. Thus, teachers functioned not simply as transmitters of literacy instruction but as mediators between different contexts, helping to align school expectations with home practices and community resources. This bridging function provides empirical support for conceptualizing teachers as Collaborative Literacy Ecosystem Connectors.

The following interview excerpts illustrate these perspectives:

- P1:** *"Teachers cannot work alone. We need continuous communication with parents so that reading practice at school is reinforced at home."*
- P2:** *"When schools, parents, and communities share the same goals, children's reading development progresses much more quickly than when each works independently."*
- P3:** *"Our responsibility extends beyond teaching children to read. We also connect families, schools, and the wider community so that every child receives the support needed to become a successful reader."*

The interview and FGD findings were supported by observational and documentary evidence. Observations indicated that teachers-maintained communication with parents through home-school communication books, classroom messaging groups, and regular meetings to discuss students' reading progress. Several schools also collaborated with regional libraries, community reading centers, and literacy organizations through reading visits, community-based literacy activities, and access to additional reading resources. Document analysis further revealed that school literacy programs were supported by internal policies, although the mechanisms for coordinating with families and community partners differed across schools. The convergence of these data sources confirms that teachers' connector roles were reflected not only in their reported perceptions but also in observable practices and institutional arrangements. At the same time, differences in coordination mechanisms indicate that multisystem collaboration was implemented with varying degrees of structure across school contexts.

To address the specific objectives of the study, the findings are presented sequentially according to three interrelated objectives. First, the study examines teachers' perspectives on early reading development and the factors that shape children's literacy experiences. Second, it explores the contributions of families, schools, and communities to children's early reading development. Third, it examines teachers' roles in connecting and coordinating these educational systems to establish a collaborative and sustainable literacy ecosystem. The findings related to these three objectives are presented sequentially below. Overall, the findings indicate that teachers function as connectors by linking four major contexts, family, school, community, and educational policy, through communication, coordination, resource mobilization, and translation of policy into practice. The five empirical categories identified in this theme are therefore interconnected rather than independent. Family engagement provides continuity between home-based and school-based literacy practices; school literacy coordination organizes literacy activities within the institution; community partnerships expand access to literacy resources; and policy implementation provides broader institutional direction. These functions converge through teachers' connector role, which integrates the different contexts around children's early reading needs. The proposed Multisystem-Based Collaborative Literacy Ecosystem therefore emerges from the empirical finding that teachers serve as a practical liaison among systems whose contributions need to be coordinated to sustain children's literacy development.

Figure 2 synthesizes the five empirical themes into the proposed Multisystem-Based Collaborative Literacy Ecosystem. The model conceptualizes family engagement, school literacy coordination, community partnerships, and educational policy implementation as interconnected components rather than independent influences. At the center of these relationships, teachers function as Collaborative Literacy Ecosystem Connectors who facilitate communication, coordinate activities, mobilize resources, and translate policy expectations into literacy practices. The model therefore extends the empirical findings by illustrating how multiple educational systems can be connected through teachers' bridging functions to create continuous and coordinated literacy experiences for children.

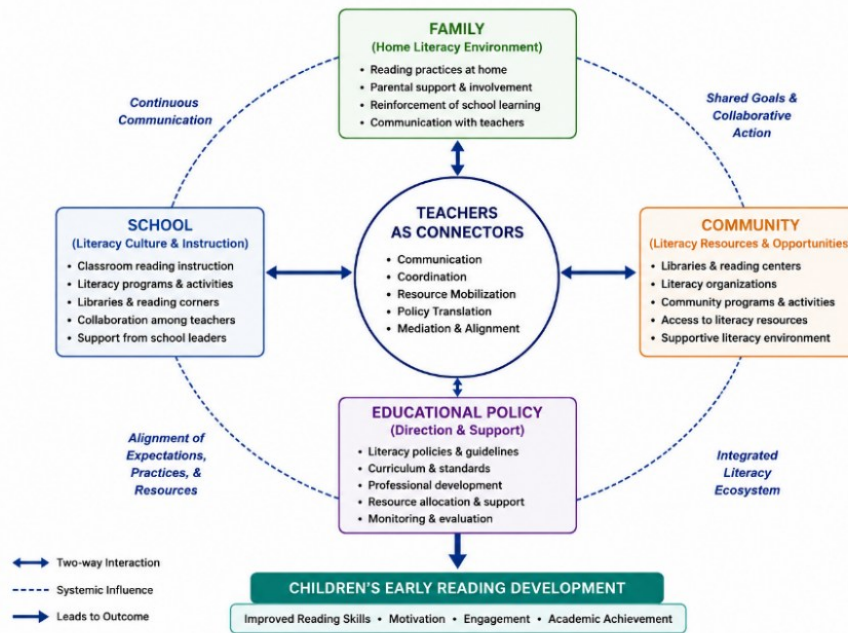


Figure 2. Proposed Collaborative Multisystem Literacy Ecosystem for Early Reading Development

DISCUSSIONS

Teachers' Perspectives on Early Reading Development

The first research question examined teachers' perspectives on early reading development and the factors that support children's literacy experiences. The findings indicate that teachers perceived early reading not simply as the technical acquisition of letter recognition, decoding, and word reading, but as a foundational competence that enables children to participate successfully in subsequent learning. This perspective is particularly important in Grades 1 and 2, when children are developing foundational reading skills that support later comprehension, independent learning, and academic participation. Previous research has similarly demonstrated that early word-reading fluency and listening comprehension contribute to the development of reading comprehension during the transition to formal schooling (Silinskas et al., 2024). Research on Grade 1 students has further shown that differences in foundational reading skills can widen during the first year of formal schooling, particularly among children who begin school with reading difficulties (Ramirez et al., 2019). This evidence reinforces the teachers' perception in the present study that early reading requires sustained attention rather than short-term instructional intervention.

However, the present findings extend previous research by highlighting how teachers interpret early reading within a broader developmental and environmental context. Much of the empirical literature on early reading has focused on children's cognitive and instructional skills, including decoding, fluency, phonological processing, and comprehension. For example, research on first-grade literacy instruction has demonstrated the importance of adapting instruction to students' developing reading needs, and research on second-grade classrooms has identified limitations in the implementation of evidence-based reading instruction (Ruotsalainen et al., 2022; Peters et al., 2022). In contrast, teachers in the present study emphasized that children's reading development continues beyond instructional encounters in the classroom. Their accounts suggest that early reading becomes more sustainable when children encounter opportunities to practice, reinforce, and use literacy skills across different environments.

This finding is important because it shifts the interpretation of early reading from an exclusively instructional outcome toward a competence supported by continuity across learning environments. Research has shown that reading fluency is closely associated with reading comprehension, particularly when children are still developing foundational reading competencies (Ardington et al., 2021). Nevertheless, fluency practice alone cannot explain the variation in children's literacy experiences identified by the teachers in this study. The present findings indicate that opportunities

to practice reading are embedded within broader relationships involving families, schools, and communities. Thus, the contribution of the present study is not to challenge the importance of foundational reading instruction, but to demonstrate that teachers perceive such instruction as one component of a broader literacy-support system. Early reading development therefore requires both instructional quality within school and continuity of literacy experiences across contexts.

This interpretation also lends support to the Bioecological Theory perspective adopted in the study. From a Bioecological Theory perspective, children's development is shaped by recurring interactions with the people, activities, and resources available within their immediate environments (Bronfenbrenner & Morris, 2007; Tong & An, 2024). The present findings suggest that early reading may be understood in a similar light: the quality of literacy development depends not only on children's individual abilities but also on whether they are afforded repeated and meaningful opportunities to engage with literacy across their everyday environments. The findings therefore provide an empirical basis for viewing early reading as a developmental process sustained by interconnected literacy experiences, rather than as an outcome produced by classroom instruction alone.

Contributions of Families, Schools, and Communities

The second research question examined how families, schools, and communities contribute to children's early reading development. The findings indicate that these three contexts provide distinct yet complementary forms of literacy support. Family support sustains continuity in literacy practice beyond school hours; school literacy culture provides structured instruction, routines, and monitoring; and community participation extends children's access to literacy resources and experiences beyond the immediate school setting. The present findings therefore suggest that the contribution of these environments cannot be fully understood by treating them as independent predictors of literacy development.

The family emerged as an important foundation for children's literacy experiences. Teachers described home reading routines, parental guidance, communication with schools, and literacy-rich home environments as important supports for early reading. This finding is broadly consistent with research demonstrating positive associations between home literacy environments and children's literacy development. A meta-analysis by Dong et al. (2020), for example, found a moderate positive association between the home literacy environment and children's reading comprehension, with parental involvement and literacy expectations showing particularly meaningful relationships with reading outcomes. Similarly, Georgiou et al. (2021) found longitudinal relationships between home reading activities, reading interest, and reading skills from Grade 1 to Grade 3. Torppa et al. (2022) further demonstrated that different home literacy activities may contribute through distinct developmental pathways, with home literacy teaching, shared reading, vocabulary, motivation, and reading fluency each playing a distinct role in later reading comprehension.

At the same time, the present findings offer an important qualification to the assumption that family involvement is uniformly available or equally effective. Teachers reported variation in the intensity of parental involvement, including differences in parents' available time, knowledge, and capacity to support reading. This observation is consistent with research showing that home literacy environments are multidimensional, and that their constituent components do not necessarily contribute to literacy development in identical ways. Inoue et al. (2020), for example, found that parent teaching and access to literacy resources were associated with different aspects of early literacy development, whereas shared book reading did not display the same predictive pattern across the languages examined. Thus, the present study suggests that family support should not be conceptualised merely as the amount of parental involvement; rather, the quality, consistency, accessibility, and alignment of literacy practices may be more consequential in establishing meaningful continuity between home and school.

The school constituted the second major context identified by teachers. Classroom reading activities, reading corners, school libraries, daily reading routines, and the integration of literacy across subjects provided structured opportunities for children to develop and practise reading. Previous research supports the importance of classroom and school conditions for literacy development. Studies of first- and second-grade classrooms have shown that instructional organisation, instructional support, and opportunities to engage with evidence-based reading practices are associated with

children's reading development (Ruotsalainen et al., 2022; Peters et al., 2022). Research examining physical classroom environments has likewise demonstrated that learning conditions can influence the development of reading fluency (Rance et al., 2023). Nevertheless, the present findings suggest that school literacy culture ought not be reduced to the mere existence of literacy programmes or physical resources. Teachers emphasised that the value of school literacy activities depends on how consistently these activities are implemented and connected with children's broader learning experiences. This distinction is significant, since a school may possess a reading corner, library, or literacy programme without necessarily establishing continuity between school-based literacy and literacy practices at home or within the community. Consequently, the present findings extend school literacy research by emphasising coordination and continuity as dimensions of literacy culture, rather than treating school resources and activities as sufficient conditions for literacy development in their own right.

The community represented the third context contributing to children's literacy experiences. Teachers identified village libraries, community reading centres, literacy organisations, and local government support as resources capable of extending literacy opportunities beyond school. This finding accords with recent research emphasising family-school-community partnerships as a means of creating broader and more culturally responsive literacy opportunities. Miller and Khatib (2023), for example, argue that family literacy approaches can intentionally connect home, school, and community resources while recognising families' cultural and linguistic practices. Similarly, Chatenoud et al. (2023) reported that teachers recognised the potential value of family-teacher-community collaboration in supporting children's reading, although teachers also experienced difficulty in determining how such responsibilities might become genuinely complementary. The findings of the present study add an important institutional dimension to this literature. Community resources were not systematically integrated across all participating schools; some schools had established relationships with village governments, libraries, or literacy organisations, whereas others relied more heavily on existing or individual initiatives. Community participation, therefore, does not automatically generate a literacy ecosystem simply by virtue of resources being available; such resources must be identified, connected, coordinated, and aligned with children's learning needs. This finding is particularly pertinent to the Indonesian context, where community-based literacy resources may well exist, yet their relationship with formal school literacy programmes can vary considerably.

Taken together, the findings suggest that family, school, and community environments ought to be understood as functionally complementary systems. The family sustains continuity and everyday literacy practice; the school provides structured instruction and assessment; and the community furnishes additional resources, spaces, and opportunities. Whilst previous research has established the importance of these environments individually, the present study advances the discussion towards the relationships among them. The central issue, therefore, is not merely whether children have access to multiple literacy environments, but whether those environments communicate with and reinforce one another around shared literacy goals. This distinction provides the foundation for the third research question, concerning teachers' roles as connectors across these systems.

Teachers as Collaborative Literacy Ecosystem Connectors

The third research question examined teachers' roles in connecting and coordinating families, schools, communities, and educational policies. The findings identify teachers as central actors who perform a connecting and mediating function across these systems. Teachers communicated students' reading progress to parents, provided guidance for home literacy activities, coordinated school literacy programmes, connected schools with community literacy resources, and translated broader literacy policies into classroom and school practices. These roles indicate that teachers' contribution extends beyond the direct delivery of reading instruction.

This finding is consistent with recent research emphasising the importance of teacher-facilitated family-school relationships. Çelik and Tomris (2024), for example, describe home-school collaboration as a process requiring communication and coordination among teachers, parents, and other educational actors. Research on home-school communication has likewise shown that collaboration is shaped by how schools and teachers establish mechanisms for interaction, rather than simply by the

existence of formal partnership policies (Levy, 2024). Daniel (2011) similarly argued that family–school partnerships require stronger theoretical and professional foundations if they are to become sustainable pedagogical practices. However, the present findings extend this literature in two important ways. First, existing research on teacher–family collaboration often focuses on the relationship between two systems: school and family. The present study identifies teachers as connecting multiple systems simultaneously, including family, school, community, and policy environments. Second, the connector role identified in this study is not limited to communication. Teachers also coordinate literacy activities, align expectations, identify resources, and translate policy into local practice. The role is therefore both relational and organisational.

The finding that teachers act as connectors is also supported by research showing that family engagement can be strengthened when teachers reconsider their role, moving from simply involving parents towards building reciprocal relationships. Baxter and Kilderry (2022), for example, found that teachers' initial family-engagement practices could be constrained when families were viewed primarily through a school-centred parent-involvement framework. Their study showed that reflective practice could help teachers distinguish family engagement from parent involvement, and connect school learning with learning occurring in homes and communities. This resonates with the present study, as teachers did not describe families merely as recipients of school instructions; rather, they described communication and guidance as mechanisms for connecting children's literacy experiences across settings.

In addition, the findings reveal that the connector role is context-dependent. Collaboration was not uniform across the participating schools: some schools had established communication channels with parents and community partners, while others relied more strongly on individual teacher initiative. This finding is analytically important, as it challenges the assumption that implementing a school literacy programme automatically creates an integrated literacy ecosystem. A programme can exist formally while remaining fragmented if stakeholders lack mechanisms for communication, coordination, and shared responsibility. Recent research on family–school partnerships similarly indicates that collaboration depends on the conditions under which teachers and families interact. For example, research on culturally responsive home–school partnerships has shown that sustainable collaboration requires institutional recognition, reciprocal communication, and structures that allow teachers and families to contribute meaningfully, rather than assigning responsibility to teachers or parents individually (Sianturi et al., 2025). The variation identified in the present study should not, therefore, be interpreted merely as a difference in teacher commitment; it also reflects differences in institutional support, partnership structures, available resources, and opportunities for collaboration.

The findings further clarify the meaning of the teacher-as-connector concept. Teachers should not be interpreted as the sole agents responsible for coordinating the entire literacy ecosystem, as such an interpretation would risk transforming the connector role into an additional burden on teachers. Rather, the connector role represents a relational function through which teachers help distribute responsibility among families, schools, communities, and educational stakeholders. Teachers are well positioned to identify children's needs, given their direct interaction with students, but addressing those needs may require resources and actions located outside the classroom. Their role is therefore to facilitate connections among people, resources, expectations, and practices, while maintaining children's literacy development as the shared focus.

This distinction offers an important theoretical contribution to the Bioecological Theory interpretation of literacy development. Bronfenbrenner's Bioecological Theory emphasises that development occurs through interactions within and among environmental systems. The present findings extend this perspective by identifying a practical mechanism through which those systems can become more coordinated. In the context of early reading, teachers occupy a strategic position between the child's immediate learning environment and broader educational systems: their communication with families represents a connection between microsystems; their coordination with school leaders and colleagues strengthens institutional relationships; their engagement with community organisations connects school learning with external resources; and their interpretation of educational policy links local practice with broader institutional expectations. The teacher therefore functions as a connector within the mesosystemic relationships surrounding children's literacy development, rather than merely as an instructional actor.

The Collaborative Multisystem Literacy Ecosystem as a Conceptual Contribution

Taken together, the three research questions reveal that the five empirical themes identified in this study are interconnected rather than linear. Teachers' perspectives on early reading establish the developmental need for sustained literacy support; family support extends literacy experiences into the home; school literacy culture provides structured opportunities for reading instruction and practice; community participation expands access to literacy resources; and teachers connect these contexts through communication, coordination, and mediation. The proposed Multisystem-Based Collaborative Literacy Ecosystem therefore emerges from the relationships among these themes, rather than from any single environmental influence.

This conceptualisation differs from an approach in which family, school, and community are treated as separate predictors of literacy outcomes. Previous research has provided substantial evidence for the contribution of individual literacy environments, including home literacy environments, classroom practices, and family–school partnerships. For example, home literacy studies have demonstrated relationships between literacy activities and children's reading development, while family–school research has emphasised communication and partnership as important dimensions of educational support (Georgiou et al., 2021; Torppa et al., 2022; Stanley & Kuo, 2022; Çelik & Tomris, 2024). The present study builds on this evidence by proposing that the quality of interconnections among these environments is itself an important feature of a literacy ecosystem.

Accordingly, the contribution of this study is not simply to argue that children need support from families, schools, communities, and policymakers; that proposition is already well established. Rather, the study identifies a mechanism through which these environments can become more mutually supportive: teachers function as Collaborative Literacy Ecosystem Connectors. Their role involves communicating children's literacy needs, aligning expectations, coordinating activities, connecting resources, and translating policies into locally meaningful practices. The concept therefore provides a bridge between an ecological description of children's environments and a more process-oriented explanation of how those environments can work together. The proposed framework should consequently be understood as a collaborative, rather than a teacher-centred, ecosystem. Teachers occupy a strategically important connecting position, but sustainable literacy development requires distributed responsibility. Families contribute home-based literacy experiences; schools provide professional instruction and institutional support; communities contribute additional resources and learning opportunities; and policymakers provide enabling structures and resources. The teacher-connector role facilitates the relationships among these contributions, rather than replacing them. This interpretation is consistent with the Bioecological Theory principle that development is produced through reciprocal interactions rather than through the action of a single environmental agent (Bronfenbrenner & Morris, 2007; Tong & An, 2024).

CONCLUSION

This study concludes that early reading development is not solely a classroom-based process, but is shaped by the interaction of multiple literacy-supporting environments. Teachers' perspectives indicate that families, schools, communities, and educational policies provide complementary forms of support that become more meaningful when connected through sustained communication and coordination. The findings further show that teachers occupy a distinctive position within these interactions by linking children's classroom learning with literacy practices at home, school-based literacy initiatives, community resources, and broader educational policies. Based on the five empirical themes identified in this study, the Multisystem-Based Collaborative Literacy Ecosystem is proposed as a conceptual framework for understanding early reading development as a coordinated process involving interconnected educational systems. Several limitations should be considered when interpreting the findings. The study involved only 25 Grade 1 and Grade 2 teachers from purposively selected elementary schools in Lamongan, East Java, Indonesia; therefore, the findings primarily represent teachers' perspectives and cannot be generalised to the perspectives of parents, students, school leaders, community literacy organisations, or educational policymakers. Although the use of interviews, focus group discussions, classroom observations, and document analysis enabled

triangulation, the study was situated within a specific educational and sociocultural context, and differences in school resources, community characteristics, family conditions, and educational policies may affect the applicability of the proposed ecosystem in other settings. Moreover, the exploratory qualitative design generated a conceptual framework but did not empirically test its effectiveness as an intervention model. Future research should incorporate multiple stakeholder perspectives, examine the framework across diverse regions and contexts, develop and validate instruments measuring relationships among family support, school literacy culture, community participation, teacher-connector practices, and early reading outcomes, and conduct quantitative, mixed-methods, or intervention-based studies to evaluate its effectiveness. Despite these limitations, the findings have implications for early literacy programmes at the school, professional, institutional, and policy levels. Schools should establish systematic collaboration with families, community literacy organisations, libraries, and other stakeholders throughout literacy planning, implementation, monitoring, and evaluation, while professional development should strengthen teachers' capacity to engage families, coordinate literacy initiatives, develop community partnerships, and translate policies into locally relevant practices. Educational authorities should provide adequate resources, professional support, and partnership mechanisms to sustain cross-system collaboration and to distribute responsibility for early reading development among relevant stakeholders, rather than placing the coordination burden solely on teachers. Overall, the Multisystem-Based Collaborative Literacy Ecosystem provides a practical direction for developing coordinated literacy initiatives in which families, schools, communities, and broader educational systems fulfil complementary roles focused on children's early reading needs.

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AUTHOR'S DECLARATIONS

Authors' Contributions

NK: Conceptualisation, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft. RES: Supervision, Validation, Writing – review & editing. EP: Methodology, Validation, Writing – review & editing. AI: Formal analysis, Validation, Writing – review & editing. MME: Conceptualisation, Supervision, Project administration, Writing – review & editing. TAA: Writing – review & editing, particularly the theoretical framing and international positioning of the study. All authors read and approved the final manuscript.

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Availability of Data and Materials

The datasets generated and/or analyzed during the current study are stored by the authors and are available from the corresponding author, upon reasonable request.

Competing Interests

The authors declare that they have no competing interests.

REFERENCES

- Ardington, C., Wills, G., Pretorius, E., Mohohlwane, N., & Menendez, A. (2021). Benchmarking oral reading fluency in the early grades in Nguni languages. *International Journal of Educational Development*, 84, Article 102433. <https://doi.org/10.1016/j.ijedudev.2021.102433>
- Baxter, G., & Kilderry, A. (2022). Family school partnership discourse: Inconsistencies, misrepresentation, and counter narratives. *Teaching and Teacher Education*, 109, Article 103561. <https://doi.org/10.1016/j.tate.2021.103561>

- Bigozzi, L., Vettori, G., & Incognito, O. (2023). The role of preschoolers' home literacy environment and emergent literacy skills on later reading and writing skills in primary school: A mediational model. *Frontiers in Psychology*, 14, Article 1113822. <https://doi.org/10.3389/fpsyg.2023.1113822>
- Bonanati, S., & Rubach, C. (2022). Reciprocal relationship between parents' school- and home-based involvement and children's reading achievement during the first year of elementary school. *Societies*, 12(2), 63. <https://doi.org/10.3390/soc12020063>
- Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (6th ed., pp. 793–828). John Wiley & Sons. <https://doi.org/10.1002/9780470147658.chpsy0114>
- Çelik, S., & Tomris, G. (2024). "A chain of interlocking rings": Preschool teachers' experiences regarding home-school collaboration with a focus on children with special needs and their parents in inclusive education. *Children and Youth Services Review*, 163, 107700. <https://doi.org/10.1016/j.childyouth.2024.107700>
- Chatenoud, C., Ménard, M., Souissi, F., Turcotte, C., Aldama, R., & Kalubi, J.-C. (2023). Collaboration école-famille-communauté pour favoriser l'apprentissage de la lecture [Family-school-community collaboration to promote reading skills]. *Revue francophone de la déficience intellectuelle*, 32, 1–13. <https://doi.org/10.7202/1109856ar>
- Cheung, S. K., Dulay, K. M., Yang, X., Mohseni, F., & McBride, C. (2021). Home literacy and numeracy environments in Asia. *Frontiers in Psychology*, 12, 578764. <https://doi.org/10.3389/fpsyg.2021.578764>
- Claes, R., Laga, J., Denies, K., Bleukx, N., Dockx, J., Van Keer, H., & Aesaert, K. (2024). The interplay between students' home literacy environment, reading attitudes and comprehension: A serial mediation analysis using PIRLS 2021-data. *Large-scale Assessments in Education*, 12(1), Article 43. <https://doi.org/10.1186/s40536-024-00233-8>
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.
- Daniel, G. (2011). Family-school partnerships: Towards sustainable pedagogical practice. *Asia-Pacific Journal of Teacher Education*, 39(2), 165–176. <https://doi.org/10.1080/1359866X.2011.560651>
- de la Rie, S., van Steensel, R., van Gelderen, A., & Severiens, S. (2021). Effects of a Dutch family literacy program: The role of implementation. *Education Sciences*, 11(2), Article 50. <https://doi.org/10.3390/educsci11020050>
- Dong, Y., Dong, W. Y., Wu, S. X. Y., & Tang, Y. (2020). The effects of home literacy environment on children's reading comprehension development: A meta-analysis. *Educational Sciences: Theory and Practice*, 20(2), 63–82. <https://eric.ed.gov/?id=EJ1251494>
- El Zaatari, W., & Maalouf, I. (2022). How the Bronfenbrenner bio-ecological system theory explains the development of students' sense of belonging to school? *SAGE Open*, 12(4), 1–16. <https://doi.org/10.1177/21582440221134089>
- Esmaeeli, S. (2024). A model of the home literacy environment and family risk of reading difficulty in relation to children's preschool emergent literacy. *Journal of Learning Disabilities*, 57(3), 181–196. <https://doi.org/10.1177/00222194231195623>
- Georgiou, G. K., Inoue, T., & Parrila, R. (2021). Developmental relations between home literacy environment, reading interest, and reading skills: Evidence from a 3-year longitudinal study. *Child Development*, 92(5), 2053–2068. <https://doi.org/10.1111/cdev.13589>
- Gildore, P. J. E., Aryanto, S., Suharjuddin, Denatara, E. T., & Awiria. (2025). Effective reading intervention strategies for primary grade students in Indonesia: A systematic review. *Cogent Education*, 12(1), Article 2482470. <https://doi.org/10.1080/2331186X.2025.2482470>
- Gregoriadis, A., & Evangelou, M. (2022). Revisiting the home learning environment: Introducing the home learning ecosystem. *Australasian Journal of Early Childhood*, 47(3), 206–218. <https://doi.org/10.1177/18369391221099370>
- Inoue, T., Manolitsis, G., de Jong, P. F., Landerl, K., Parrila, R., & Georgiou, G. K. (2020). Home literacy environment and early literacy development across languages varying in orthographic

- consistency. *Frontiers in Psychology*, 11, Article 1923. <https://doi.org/10.3389/fpsyg.2020.01923>
- Larimer, A. J., Stefansson, K. K., Petursdottir, A. L., McMaster, K., & Bjorgvinsdottir, A. S. (2025). Reading growth across 1st grade: Is there a Matthew effect in Icelandic schools? *European Journal of Psychology of Education*, 40(1), 123–145. <https://doi.org/10.1007/s10212-025-00948-4>
- Levy, R. (2024). Home–school communication: What we have learned from the pandemic. *Education* 3-13, 52(1), 21–32. <https://doi.org/10.1080/03004279.2023.2186972>
- Liansari, V., Taufiq, W., & Santoso, D. R. (2021). The implementation of literacy culture programs in elementary school. *Jo-ELT (Journal of English Language Teaching)*, 8(2), 189–197. <https://doi.org/10.33394/jo-elt.v8i2.4481>
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.
- Marmoah, S., Poerwanti, & Suharno, J. I. S. (2022). Literacy culture management of elementary school in Indonesia. *Heliyon*, 8(4), Article e09315. <https://doi.org/10.1016/j.heliyon.2022.e09315>
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2019). *Qualitative data analysis: A methods sourcebook* (4th ed.). SAGE Publications.
- Miller, G. E., & Khatib, S. M. (2023). Honoring diverse cultures through family literacy approaches that build family, school, and community partnerships. *The Reading Teacher*, 76(5), 586–593. <https://doi.org/10.1002/trtr.2181>
- Navarro, J. L., & Tudge, J. R. H. (2023). Technologizing Bronfenbrenner: Neo-ecological theory. *Current Psychology*, 42(22), 19338–19354. <https://doi.org/10.1007/s12144-022-02738-3>
- Organisation for Economic Co-operation and Development. (2023). *PISA 2022 results (Volume I and II): Indonesia country notes*. OECD Publishing. https://www.oecd.org/en/publications/pisa-2022-results-volume-i-and-ii-country-notes_ed6fbcc5-en/indonesia_c2e1ae0e-en.html
- Pambudi, H. A., & Fajrin, H. O. (2024). A school literacy program and parental role in enhancing students' literacy. *Jurnal Akuntabilitas Manajemen Pendidikan*, 12(1), 115–125. <https://journal.uny.ac.id/index.php/jamp/article/view/72864>
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Peters, M. T., Förster, N., Forthmann, B., & Souvignier, E. (2022). Business-as-usual reading instruction in 2nd grade: Teacher-centered and rarely evidence-based. *Reading and Writing*, 35(7), 1569–1597. <https://doi.org/10.1007/s11145-021-10252-4>
- Rance, G., Dowell, R. C., & Tomlin, D. (2023). The effect of classroom environment on literacy development. *npj Science of Learning*, 8(1), Article 9. <https://doi.org/10.1038/s41539-023-00157-y>
- Ramirez, G., Fries, L., Gunderson, E., Schaeffer, M. W., Maloney, E. A., Beilock, S. L., & Levine, S. C. (2019). Reading anxiety: An early affective impediment to children's success in reading. *Journal of Cognition and Development*, 20(1), 15–34. <https://doi.org/10.1080/15248372.2018.1526175>
- Ruotsalainen, J., Pakarinen, E., Poikkeus, A.-M., & Lerkkanen, M.-K. (2022). Literacy instruction in first grade: Classroom-level associations between reading skills and literacy instruction activities. *Journal of Research in Reading*, 45(1), 83–99. <https://doi.org/10.1111/1467-9817.12384>
- Saldaña, J. (2021). *The coding manual for qualitative researchers* (4th ed.). SAGE Publications.
- Schiefele, U., Stutz, F., & Schaffner, E. (2016). Longitudinal relations between reading motivation and reading comprehension in the early elementary grades. *Learning and Individual Differences*, 51, 49–58. <https://doi.org/10.1016/j.lindif.2016.08.031>
- Sianturi, M., Lee, J.-S., & Cumming, T. M. (2025). Strengthening Indigenous parents' co-leadership through culturally responsive home-school partnerships: A practical implementation framework. *Pedagogy, Culture & Society*, 33(3), 823–846. <https://doi.org/10.1080/14681366.2023.2272746>
- Silinskas, G., Gedutiene, R., Torppa, M., & Raiziene, S. (2024). Simple view of reading across the transition from kindergarten to grade 1 in a transparent orthography. *Scientific Studies of Reading*, 28(1), 60–78. <https://doi.org/10.1080/10888438.2023.2220848>

- Stanley, K., & Kuo, N.-C. (2022). "It takes a village": Approaching the development of school-family-community partnerships through Bronfenbrenner's socio-ecological perspectives. *Journal of Human Sciences and Extension*, 10(1), Article 10. <https://doi.org/10.54718/cqbw6379>
- Stebbins, R. (2001). *Exploratory research in the social sciences*. SAGE Publications. <https://doi.org/10.4135/9781412984249>
- Suras, F. E., Pamungkas, J., & Rolina, N. (2025). Reading literacy: Exploring the potential of school to support children's literacy development. *Jurnal Pendidikan Anak Usia Dini Undiksha*, 13(1), 188–197. <https://doi.org/10.23887/paud.v13i1.86957>
- Tong, P., & An, I. S. (2024). Review of studies applying Bronfenbrenner's bioecological theory in international and intercultural education research. *Frontiers in Psychology*, 14, Article 1233925. <https://doi.org/10.3389/fpsyg.2023.1233925>
- Torppa, M., Vasalampi, K., Eklund, K., & Niemi, P. (2022). Long-term effects of the home literacy environment on reading development: Familial risk for dyslexia as a moderator. *Journal of Experimental Child Psychology*, 215, Article 105314. <https://doi.org/10.1016/j.jecp.2021.105314>
- Tudge, J. R. H., Payir, A., Merçon-Vargas, E., Cao, H., Liang, Y., Li, J., & O'Brien, L. (2016). Still misused after all these years? A reevaluation of the uses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review*, 8(4), 427–445. <https://doi.org/10.1111/jftr.12165>
- Vanbecelaere, S., Matsuyama, K., Reynvoet, B., & Depaepe, F. (2021). The role of the home learning environment on early cognitive and non-cognitive outcomes in math and reading. *Frontiers in Education*, 6, Article 746296. <https://doi.org/10.3389/feduc.2021.746296>
- Wigfield, A., Gladstone, J. R., & Turci, L. (2016). Beyond cognition: Reading motivation and reading comprehension. *Child Development Perspectives*, 10(3), 190–195. <https://doi.org/10.1111/cdep.12184>
- Wirth, A., Ehmig, S. C., & Niklas, F. (2022). The role of the Home Literacy Environment for children's linguistic and socioemotional competencies development in the early years. *Social Development*, 31(2), 372–387. <https://doi.org/10.1111/sode.12550>
- Zhang, S. Z., Inoue, T., & Georgiou, G. K. (2024). Is there a genetic confound in the relation of home literacy environment with children's reading skills? A familial control method approach. *Reading Research Quarterly*, 59(3), 408–423. <https://doi.org/10.1002/rrq.553>