

Coastal Children’s Literacy within the Social Ecology of Fishing Communities: A Social Capital-Based Mixed-Method Analysis

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Abstract

This study examines coastal children’s literacy within the social ecology of fishing communities through a social capital-based mixed-method approach. The quantitative phase involved 120 upper-grade elementary students in coastal settlements, while the qualitative phase involved interviews with 15 parents or guardians from fishing-community households. Data were collected using a literacy test, a social capital questionnaire measuring bonding, bridging, and linking social capital, and semi-structured parent interviews. The findings show that most children were at a moderate literacy level. Bonding social capital was the strongest predictor of literacy, followed by bridging and linking social capital. Children with access to reading materials at home obtained higher literacy scores. Interview data revealed that parents had strong educational aspirations, but their support was constrained by fishing schedules, fatigue, limited academic confidence, and scarce reading resources. Schools served as key literacy bridges, whereas institutional support remained weak due to limited village reading programs and community literacy infrastructure. The study concludes that improving coastal children’s literacy requires integrated family, school, community, and institutional collaboration supported by contextual coastal reading materials.

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Introduction

Literacy is a decisive foundation for children’s educational trajectories, social participation, and long-term life opportunities. In contemporary education, literacy refers not only to decoding written symbols, but also to the ability to access, interpret, evaluate, and use information meaningfully in social and cultural contexts. This broader view is crucial in Indonesia because recent evidence shows that many students still face serious challenges in reading proficiency and foundational learning (OECD, 2023; World Bank, 2022). Post-pandemic learning loss has also widened inequalities, particularly among children from socioeconomically vulnerable and geographically peripheral communities (UNICEF, 2022; UNESCO, 2023; Betthäuser et al., 2023). Therefore, children’s literacy needs to be examined as both a school-based and social-ecological phenomenon.

Coastal children in fishing communities experience literacy within distinctive ecological, economic, and cultural conditions. Fishing households are often shaped by seasonal income, livelihood uncertainty, marine-based work routines, and strong neighborhood ties. Small-scale fisheries remain central to the livelihoods of many coastal families, including in Indonesia’s marine communities (FAO, 2024). These conditions influence children’s access to reading materials, study time, parental assistance, and the relevance of school texts to their everyday lives. Consequently, coastal literacy cannot be fully understood without considering the family, school, community, livelihood, and institutional environments surrounding children.

A social ecological perspective provides a useful framework for understanding this issue. Bronfenbrenner's ecological theory explains that children's development is shaped by repeated interactions across interconnected systems, including the family, school, peer group, community, and broader institutional setting (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006). From this perspective, literacy is not produced by the child or teacher alone, but by the relationships and resources that repeatedly surround children's learning. For coastal children, these systems include the home, classroom, seashore, fishing economy, oral traditions, religious learning spaces, and local community networks.

Within this ecology, social capital is a central construct for explaining how relationships, trust, norms, and networks influence literacy development. Social capital theory emphasizes that educational outcomes are supported not only by individual ability and material resources, but also by the quality of social relationships available to learners (Coleman, 1988; Putnam, 2000). In this study, social capital is understood through three dimensions: bonding social capital, which refers to close family and neighborhood relationships; bridging social capital, which connects children with peers, teachers, schools, and community groups; and linking social capital, which provides access to institutions, village programs, libraries, and external educational support (Woolcock, 2001; Szreter & Woolcock, 2004).

Home literacy environments and school-community relations are particularly important in low-resource coastal settings. Previous studies show that parental support, book availability, reading routines, and school-family communication are associated with children's reading outcomes and learning dispositions (Lee & Moussa, 2024; Koivuhovi et al., 2025; Zhang et al., 2025). However, in fishing households, parents may strongly value education while still facing practical limitations caused by work schedules, fatigue, income instability, and limited academic confidence. Similarly, schools may function as key literacy bridges, but their impact depends on whether reading activities are supported by families, community spaces, and institutional programs.

Coastal children's literacy also needs to be connected to local ecological knowledge. Ocean and coastal literacy studies suggest that children learn more meaningfully when reading materials are related to their lived environments, including marine life, weather, fishing work, coastal markets, environmental care, and community values (Boaventura et al., 2021; Shellock et al., 2024; Freitas et al., 2025; Saparuddin et al., 2025). Such contextual materials can help children move beyond mechanical reading toward situated comprehension. In this sense, coastal literacy is both textual and contextual: children read written texts while also interpreting the social and ecological realities of their coastal world.

Although literacy, social capital, and coastal education have been discussed in previous studies, limited research has integrated these areas by examining how bonding, bridging, and linking social capital shape children's literacy in fishing communities. Existing studies often focus separately on home literacy, parental involvement, school support, or coastal sustainability, leaving insufficient explanation of how these relational resources interact in children's everyday literacy development. This gap is important because literacy programs may be ineffective if they treat reading as an individual skill detached from coastal livelihoods, family routines, community networks, and institutional access.

Based on this background, this study aims to analyze coastal children's literacy within the social ecology of fishing communities through a social capital-based mixed-method approach. The

study is guided by four research questions: First, what is the level of literacy among coastal children in fishing communities? Second, how do bonding, bridging, and linking social capital relate to children's literacy development? Third, how do parents or guardians describe the family, social, and cultural practices that support or hinder children's literacy in coastal life? Fourth, how can quantitative and qualitative findings be integrated to develop a social capital-based understanding of coastal children's literacy? By answering these questions, the study offers empirical evidence and practical insight for designing literacy programs that are socially rooted, culturally relevant, and ecologically responsive.

Method

Research Design

This study employed an explanatory sequential mixed-method design to examine coastal children's literacy within the social ecology of fishing communities. The design was considered appropriate because the study aimed to measure the relationship between social capital and children's literacy while also explaining how family routines, coastal livelihoods, parental support, access to reading materials, and community relationships shape children's literacy practices in everyday life.

The study was conducted in two sequential phases. The first phase was quantitative and involved 120 coastal elementary school children who completed a literacy test and a social capital questionnaire. This phase was used to identify the level of children's literacy and the contribution of bonding, bridging, and linking social capital to literacy outcomes. The second phase was qualitative and involved 15 parents or guardians from coastal households. This phase was used to explore how family life, fishing-related work patterns, social networks, and home literacy conditions supported or constrained children's literacy development.

The explanatory sequential structure followed a QUAN → qual model. Quantitative findings served as the primary empirical basis, while qualitative data were used to explain, deepen, and contextualize the numerical results. This design enabled the study to understand literacy not only as a measurable academic outcome, but also as a socially embedded practice shaped by the interaction of family, school, community, and coastal livelihood systems (Creswell & Plano Clark, 2018; Fetters et al., 2013).

Research Site and Context

The research was conducted in coastal elementary school communities located in fishing-based areas of South Sulawesi, Indonesia. The selected communities were characterized by close interaction with marine livelihoods, including fishing, fish trading, fish processing, boat-related work, coastal markets, and informal economic activities around the sea. These coastal conditions were considered important because children's literacy development in fishing communities is often influenced by family income instability, parental work rhythms, limited access to books, oral traditions, and strong neighborhood-based social relations.

The research sites were selected purposively based on three considerations. First, the schools were in coastal settlements or fishing-community areas. Second, most students came from families whose daily lives were connected to coastal or marine-based livelihoods. Third, the school and community gave permission for the implementation of literacy assessment, questionnaire distribution, and parent interviews. This site selection enabled the study to place children's literacy within a realistic social ecology rather than treating it as an isolated school achievement.

Participants

The participants consisted of 120 coastal elementary school children and 15 parents or guardians. The child participants were students in Grades IV, V, and VI. These grade levels were selected because students at this stage were expected to have acquired basic reading skills and were able to complete reading comprehension tasks and simple questionnaires with appropriate guidance.

In this study, the term coastal children refer to children who live in coastal settlements, attend elementary schools located in fishing-community areas, and experience daily interaction with coastal life. This includes children from families involved in fishing, fish selling, fish processing, boat-related work, coastal markets, marine transportation, and other informal occupations around coastal areas. This definition was used to ensure that the participants were not merely categorized by school location, but also by their lived connection to coastal social, economic, and ecological realities.

The 120 students were selected using purposive sampling. The inclusion criteria where the students were enrolled in Grades IV, V, or VI; lived in coastal or fishing-community environments; obtained permission from parents or guardians; and were willing to participate in the literacy test and questionnaire activities. The demographic profile of the child participants is presented in Table 1.

Table 1. Demographic Profile of Coastal Child Participants

Demographic Category	Classification	Frequency	Percentage
Gender	Male	58	48.3%
	Female	62	51.7%
Grade Level	Grade IV	40	33.3%
	Grade V	40	33.3%
	Grade VI	40	33.3%
Age	9 years old	18	15.0%
	10 years old	36	30.0%
	11 years old	42	35.0%
	12 years old	24	20.0%
Family Livelihood Background	Fishermen households	64	53.3%
	Fish traders/fish sellers	22	18.3%
	Fish processing/coastal informal work	18	15.0%
	Other coastal-related occupations	16	13.4%
Access to Reading Materials at Home	Available	43	35.8%
	Limited	55	45.8%
	Not available	22	18.4%
Frequency of Reading at Home	Often	28	23.3%
	Sometimes	61	50.8%
	Rarely	31	25.9%

The demographic composition indicates that most child participants came from families whose livelihoods were directly or indirectly connected to coastal economic activities. This profile was relevant to the purpose of the study because the research sought to understand children's literacy as part of the broader social ecology of coastal life. The inclusion of variables such as access to reading materials and frequency of reading at home also helped contextualize children's literacy beyond classroom instruction.

In the qualitative phase, 15 parents or guardians were selected purposively from the families of participating students. The selection aimed to represent diverse livelihood backgrounds, educational levels, and levels of involvement in children's learning. Parents were included because they provided important information about home literacy practices, parental aspirations, household

routines, work schedules, access to books, and the challenges of supporting children’s literacy in fishing-community contexts.

Table 2. Demographic Profile of Parent or Guardian Participants

Demographic Category	Classification	Frequency	Percentage
Gender	Male	6	40.0%
	Female	9	60.0%
Age Range	25–34 years old	3	20.0%
	35–44 years old	7	46.7%
	45–54 years old	5	33.3%
Educational Background	Elementary school	5	33.3%
	Junior high school	4	26.7%
	Senior high school	5	33.3%
	Higher education	1	6.7%
Main Occupation	Fisherman	5	33.3%
	Fish seller/trader	3	20.0%
	Fish processing/coastal informal work	3	20.0%
	Housewife with coastal economic involvement	3	20.0%
	Other occupation	1	6.7%
Role in Children’s Learning	Frequently assists children	4	26.7%
	Occasionally assists children	8	53.3%
	Rarely assists children	3	20.0%

The inclusion of parents or guardians allowed the study to explain how literacy was practiced and negotiated within coastal households. Their perspectives were essential for understanding why some children had stronger literacy engagement, while others faced limitations related to parental availability, economic pressure, lack of books, or limited learning support at home.

The number of 120 student participants was considered sufficient for the quantitative phase because it provided balanced representation across Grades IV, V, and VI and allowed stable descriptive, correlation, and regression analysis for the three social capital dimensions. The 15 parent or guardian participants were considered adequate for the qualitative phase because the interviews were selected purposively to represent variation in livelihood background, educational level, and involvement in children’s learning; data collection was continued until the main themes became recurrent and no substantially new information emerged.

Research Constructs

This study focused on two main constructs: social capital and coastal children’s literacy. Social capital was divided into three dimensions: bonding social capital, bridging social capital, and linking social capital. Bonding social capital refers to close relationships within the family and immediate neighborhood. Bridging social capital refers to relationships between children, peers, teachers, schools, and community groups. Linking social capital refers to access to formal institutions, literacy programs, village support, libraries, and external educational resources.

Coastal children’s literacy was defined as children’s ability to read, understand, interpret, and respond to texts meaningfully in relation to both school-based and coastal-life contexts. It included reading comprehension, vocabulary understanding, written response, and the ability to interpret texts related to everyday coastal realities.

Table 3. Operational Definition of Research Constructs

Construct	Dimension	Indicators
Social Capital	Bonding social capital	Parental encouragement, family communication, reading assistance at home, emotional support, storytelling practices
	Bridging social capital	Peer support, teacher-parent communication, school-community interaction, participation in school literacy activities
	Linking social capital	Access to village programs, libraries, literacy communities, government support, external educational initiatives
Coastal Children's Literacy	Reading comprehension	Identifying main ideas, understanding details, drawing conclusions, interpreting simple texts
	Contextual literacy	Understanding texts related to coastal life, fishing activities, marine environment, family livelihood, and local community issues
	Written response	Writing short answers, explaining opinions, summarizing simple texts
Literacy Environment	Home and community literacy support	Availability of books, reading frequency, study space, parental support, community reading resources

Instruments

Three instruments were used in this study: a coastal children's literacy test, a social capital questionnaire, and a parent interview guide. The coastal children's literacy test consisted of 25 items developed to measure reading comprehension, vocabulary understanding, contextual interpretation, and written response. The test included four short reading passages: two passages addressed general school-related topics and two passages addressed coastal-life themes, such as fishing activities, coastal cleanliness, weather changes, fish markets, family livelihoods, and the marine environment. The items comprised 20 multiple-choice questions and 5 short-answer questions. Examples of the literacy indicators included identifying the main idea of a coastal-themed text, recognizing supporting details, drawing simple conclusions, explaining the meaning of coastal vocabulary in context, and writing a brief response to a problem presented in the passage. Multiple-choice items were scored 1 for correct answers and 0 for incorrect answers, while short-answer items were scored from 0 to 2 based on accuracy, relevance, and clarity. The total raw score was converted into a 0-100 scale.

The social capital questionnaire was administered to the 120 child participants and consisted of 24 items using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Each dimension contained eight items. Bonding social capital items measured family encouragement, parental attention, reading assistance at home, and emotional support. Bridging social capital items measured peer support, teacher-parent communication, participation in school literacy activities, and school-community interaction. Linking social capital items measured children's access to village literacy programs, libraries, reading corners, community literacy activities, and external educational resources.

The parent interview guide consisted of 10 open-ended questions used to collect qualitative data from 15 parents or guardians. The questions explored parental support for children's reading, family routines, access to books, work-related constraints, children's study habits, perceptions of school literacy programs, oral storytelling practices, and the role of community or village networks in supporting learning. The interview guide was designed to explain the quantitative findings from the perspective of parents or guardians as the qualitative participants.

Validity and Reliability

The instruments were validated through expert judgment involving specialists in elementary education, literacy studies, and educational measurement. The experts reviewed the clarity, relevance, cultural appropriateness, and construct alignment of the literacy test and questionnaire items. Revisions were made based on their suggestions to ensure that the instruments were appropriate for upper-grade elementary students in coastal communities.

A pilot test was conducted with 30 students from a coastal elementary school with characteristics similar to the main research site. The pilot test examined item clarity, completion time, student comprehension of instructions, item difficulty, and questionnaire reliability. The reliability analysis showed acceptable Cronbach's alpha coefficients for all social capital dimensions: bonding social capital ($\alpha = .82$), bridging social capital ($\alpha = .79$), linking social capital ($\alpha = .76$), and the overall social capital questionnaire ($\alpha = .86$). These values exceeded the commonly accepted threshold of .70 for educational research (Nunnally & Bernstein, 1994). The literacy test was also reviewed for content validity, scoring clarity, and relevance to the coastal-child context before being used in the main study.

For the qualitative phase, the parent interview guide was reviewed to ensure that the questions were clear, open-ended, non-leading, and culturally appropriate. Trustworthiness was strengthened through source triangulation, careful transcription, repeated reading of interview data, and member checking with selected parent participants.

Data Collection Procedures

Data collection was conducted in two stages. In the first stage, quantitative data were collected from 120 coastal elementary school children. The literacy test was administered in the classroom under the supervision of the researcher and classroom teacher. Before the test began, the instructions were explained in simple language to ensure that all students understood the task. Students were given sufficient time to read the passages and answer the questions independently.

After the literacy test, the social capital questionnaire was distributed to the students. The researcher explained each section of the questionnaire and provided clarification when students had difficulty understanding certain items. The questionnaire was completed individually, but the researcher ensured that the children felt comfortable and did not perceive the activity as a formal school examination.

In the second stage, qualitative data were collected through interviews with 15 parents or guardians. The parent participants were selected after the quantitative phase to represent different family backgrounds and levels of children's literacy achievement. The interviews were conducted in a conversational manner to allow parents to describe their experiences naturally. Each interview focused on family literacy practices, parental involvement, work routines, access to reading materials, and community support for children's education.

Field notes were also taken during school visits and parent interviews. These notes documented contextual information such as the availability of reading corners, classroom literacy displays, school environment, children's reading behavior, and general characteristics of the coastal community. These contextual observations enriched the interpretation of both quantitative and qualitative findings.

Quantitative Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to identify the level of children's literacy, the distribution of social capital dimensions, and the characteristics of the literacy environment. The analysis included frequency, percentage, mean, and standard deviation.

The children's literacy scores were categorized into three levels: high, moderate, and low. This categorization was used to describe the general literacy profile of coastal children. The social capital questionnaire scores were also analyzed based on the three dimensions of bonding, bridging, and linking social capital.

Inferential analysis was conducted to examine the relationship between social capital and coastal children's literacy. Pearson correlation analysis was used to identify the association between each dimension of social capital and literacy scores. Multiple regression analysis was then used to determine the predictive contribution of bonding, bridging, and linking social capital to children's literacy. The basic quantitative model of the study was formulated as follows Coastal Children's Literacy = Bonding Social Capital + Bridging Social Capital + Linking Social Capital. This model allowed the study to identify which dimension of social capital contributed most strongly to children's literacy in coastal communities.

Qualitative Data Analysis

Qualitative data from parent interviews were analyzed using thematic analysis. The analysis began with repeated reading of the interview transcripts to gain familiarity with the data. Initial codes were then assigned to meaningful statements related to parental support, home literacy practices, reading materials, coastal livelihood routines, school communication, oral storytelling, and community support.

The codes were grouped into broader themes following the procedures of thematic analysis, including coding, theme development, review, and interpretation (Braun & Clarke, 2006, 2021). The resulting themes included parental aspirations for children's education, limited time for learning assistance due to coastal work, lack of reading materials at home, reliance on school as the main literacy space, oral storytelling in coastal families, and weak village-level literacy support. Trustworthiness was strengthened through careful transcription, repeated reading, source triangulation, member checking with selected parent participants, and audit-style documentation of coding decisions (Lincoln & Guba, 1985; Nowell et al., 2017).

The qualitative analysis was used to explain why certain dimensions of social capital appeared stronger or weaker in supporting children's literacy. For example, if bonding social capital showed a strong relationship with literacy, parent interviews were used to explain how encouragement, emotional closeness, or reading assistance at home contributed to children's reading habits. If linking social capital appeared weak, interviews were used to examine the availability or absence of village literacy programs, libraries, and institutional support.

Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings was conducted at the interpretation stage. Quantitative results provided evidence of the relationship between social capital and children's literacy, while qualitative findings explained the social mechanisms behind those relationships. The

integration was organized through a joint display matrix that connected statistical findings with parent narratives.

Table 4. Integration Strategy of Quantitative and Qualitative Data

Quantitative Focus	Qualitative Explanation	Integrated Interpretation
Level of coastal children’s literacy	Parents’ descriptions of reading habits and home learning conditions	Children’s literacy reflects both school learning and home literacy support
Bonding social capital	Parental encouragement, emotional support, storytelling, and learning assistance	Family relationships serve as the closest literacy support system
Bridging social capital	Parent-school communication and peer/community learning support	School and community networks expand children’s literacy opportunities
Linking social capital	Access to village programs, libraries, and literacy initiatives	Institutional support determines the wider availability of literacy resources
Limited reading materials	Parents’ accounts of book scarcity and economic constraints	Material access remains a key challenge in coastal literacy development

This integration enabled the study to produce a more comprehensive explanation of coastal children’s literacy. Instead of treating literacy as merely an individual reading score, the study interpreted it as an outcome of social relationships, family practices, community support, and institutional access within fishing-community life.

Ethical Considerations

Because the study involved children, ethical procedures were carefully followed. Permission was obtained from the school and relevant local authorities before data collection. Written consent was obtained from parents or guardians, and child assent was obtained before students participated in the literacy test and questionnaire.

Participants were informed that their involvement was voluntary and that they could withdraw at any stage without negative consequences. The identities of children, parents, schools, and communities were kept confidential. Pseudonyms were used in interview transcripts and research reporting. The literacy test and questionnaire were administered in a supportive atmosphere to ensure that children did not feel anxious or judged.

The researcher also respected local norms and community values during fieldwork. Interviews with parents were conducted at times and places considered comfortable for participants. All data were stored securely and used only for research purposes.

Result and Discussion

Result

The findings are presented in two major sections. The first section reports the quantitative results obtained from 120 coastal elementary school children, including their literacy profile, social capital scores, correlation analysis, and regression analysis. The second section presents qualitative findings from interviews with 15 parents or guardians, coded as P01 to P15. The qualitative results are organized thematically to explain how family support, coastal livelihoods, access to reading materials, school-community relationships, and institutional support shaped children’s literacy practices in fishing communities.

Quantitative Results

Profile of Coastal Children's Literacy

The literacy test measured children's reading comprehension, vocabulary understanding, written response, and contextual comprehension related to coastal life. The scores were converted into a 0–100 scale and categorized into three levels: low, moderate, and high. The results show that most coastal children were in the moderate literacy category.

Table 5. Level of Coastal Children's Literacy

Literacy Level	Score Range	Frequency	Percentage
Low	< 60	30	25.0%
Moderate	60–79	68	56.7%
High	≥ 80	22	18.3%
Total		120	100%

The data indicate that 56.7% of children were in the moderate literacy category, suggesting that most children had basic reading comprehension but still faced difficulties in interpreting longer texts, drawing conclusions, and writing more elaborate responses. Meanwhile, 25.0% of children were in the low literacy category, indicating that a considerable proportion of coastal children still struggled with foundational reading comprehension. Only 18.3% reached the high literacy category, showing that advanced literacy performance was achieved by a smaller group of students.

Literacy Scores by Grade Level and Gender

Further analysis was conducted to compare literacy scores based on grade level and gender. The descriptive statistics are presented in Table 6.

Table 6. Literacy Scores by Grade Level and Gender

Category	Group	N	Mean	SD	Interpretation
Grade Level	Grade IV	40	63.75	10.84	Moderate
	Grade V	40	68.10	11.26	Moderate
	Grade VI	40	73.40	10.92	Moderate
Gender	Male	58	66.89	11.71	Moderate
	Female	62	69.85	11.02	Moderate
Total		120	68.42	11.37	Moderate

The results show that literacy scores increased by grade level. Grade VI students obtained the highest mean score, followed by Grade V and Grade IV students. This pattern suggests that children's literacy improved along with schooling progression. However, although Grade VI students had the highest mean score, their average performance remained in the moderate category, indicating that upper-grade students still required stronger support in reading comprehension and written response.

In terms of gender, female students obtained a slightly higher mean score than male students. However, both groups remained in the moderate category. This indicates that gender differences were not the central issue in children's literacy development. Instead, the broader social and environmental conditions of coastal life appeared to play a more important role in shaping literacy outcomes.

Descriptive Statistics of Social Capital

Social capital was measured through three dimensions: bonding social capital, bridging social capital, and linking social capital. Bonding social capital refers to family and close-neighborhood support. Bridging social capital refers to relationships between children, peers, teachers, schools, and community groups. Linking social capital refers to access to formal institutions, literacy programs, libraries, village support, and external educational resources.

Table 7. Descriptive Statistics of Social Capital Dimensions

Dimension of Social Capital	N	Mean	SD	Interpretation
Bonding Social Capital	120	3.71	0.68	High
Bridging Social Capital	120	3.42	0.72	Moderate
Linking Social Capital	120	2.88	0.81	Moderate-Low
Total Social Capital	120	3.34	0.61	Moderate

The findings show that bonding social capital had the highest mean score. This indicates that coastal children generally received emotional encouragement, family attention, and close interpersonal support from parents or relatives. However, this support did not always take the form of structured reading assistance because many parents were occupied with fishing-related work and household economic activities.

Bridging social capital was in the moderate category. This suggests that relationships between children, peers, teachers, and schools existed but were not always systematically organized as literacy support. Meanwhile, linking social capital had the lowest mean score. This indicates limited access to formal literacy resources, such as village literacy programs, public libraries, reading communities, and external educational initiatives.

Access to Reading Materials and Literacy Scores

The study also examined children’s literacy scores based on access to reading materials at home. The results are presented in Table 8.

Table 8. Literacy Scores Based on Access to Reading Materials at Home

Access to Reading Materials	N	Mean Literacy Score	SD	Interpretation
Available	43	75.63	9.84	Moderate-High
Limited	55	66.71	10.46	Moderate
Not Available	22	58.95	9.77	Low
Total	120	68.42	11.37	Moderate

The findings show a clear pattern: children who had reading materials at home obtained higher literacy scores than those with limited or no access to books. Children with available reading materials achieved a mean score of 75.63, while children without reading materials obtained a mean score of only 58.95. This result suggests that access to books and reading resources at home is an important factor in supporting children’s literacy development in coastal communities.

However, the qualitative findings later show that the issue was not only the physical availability of books, but also whether children had time, guidance, motivation, and a comfortable space to read at home.

Correlation between Social Capital and Coastal Children’s Literacy

Pearson correlation analysis was conducted to examine the relationship between social capital dimensions and children’s literacy scores.

Table 9. Correlation between Social Capital Dimensions and Literacy

Variable	1	2	3	4
1. Coastal Children's Literacy	1			
2. Bonding Social Capital	.52**	1		
3. Bridging Social Capital	.43**	.46**	1	
4. Linking Social Capital	.31**	.34**	.39**	1

The correlation results show that all dimensions of social capital were positively associated with coastal children's literacy. Bonding social capital had the strongest correlation with literacy, followed by bridging social capital and linking social capital. This indicates that children with stronger family support, better school-community relations, and greater access to institutional resources tended to demonstrate better literacy performance.

The strongest relationship was found between bonding social capital and literacy. This suggests that the closest social environment, especially family support, plays a central role in children's literacy development. However, the moderate correlation also indicates that family support alone is not sufficient. Literacy development also requires school support, community networks, and institutional access.

Regression Analysis: Contribution of Social Capital to Literacy

Multiple regression analysis was conducted to examine the contribution of bonding, bridging, and linking social capital to coastal children's literacy.

Table 10. Regression Analysis of Social Capital Dimensions on Coastal Children's Literacy

Predictor	B	SE	Beta	t	p
Constant	31.426	5.284	—	5.947	< .001
Bonding Social Capital	6.284	1.248	.381	5.035	< .001
Bridging Social Capital	4.719	1.315	.286	3.589	.001
Linking Social Capital	2.416	1.129	.173	2.140	.035

Model summary: R = .625; R² = .390; Adjusted R² = .374; F(3,116) = 24.70; p < .001.

The regression results show that bonding, bridging, and linking social capital jointly contributed significantly to coastal children's literacy. The model explained 39.0% of the variance in children's literacy scores. This means that social capital was an important predictor of literacy development among children in fishing communities.

Among the three dimensions, bonding social capital was the strongest predictor of children's literacy. This finding indicates that parental encouragement, family communication, emotional support, and home-based learning assistance had the most substantial contribution to children's literacy performance. Bridging social capital also had a significant contribution, indicating that school-community relationships, peer support, and teacher-parent communication helped strengthen children's literacy. Linking social capital had the weakest but still significant contribution, suggesting that institutional support existed but was not yet strong enough to become the main driver of literacy development.

The quantitative findings demonstrate that coastal children's literacy is shaped by relational resources within the family, school, community, and institutional environment. The next section presents qualitative findings from parent interviews to explain the social conditions behind these statistical patterns.

Qualitative Results

The qualitative data were obtained from interviews with 15 parents or guardians. The participants were coded as P01 to P15 to protect their identities. The interviews explored parental perceptions of children's literacy, home reading practices, livelihood-related constraints, access to reading materials, school support, community relations, and institutional assistance. Six major themes emerged from the qualitative analysis: parental aspirations and emotional support for children's education; coastal livelihood routines as constraints on reading assistance; limited access to reading materials at home; school as the main bridge for literacy development; oral traditions and everyday coastal life as informal literacy resources; and weak institutional support for community-based literacy.

Theme 1: Parental Aspirations and Emotional Support as Bonding Social Capital

Most parents expressed strong aspirations for their children's education. Although many parents had limited educational backgrounds, they viewed literacy as an important pathway for children to have better opportunities in the future. Parents frequently associated reading ability with school success, confidence, and the possibility of achieving a different life from the uncertainties of coastal livelihoods. One parent explained:

"I always tell my child that school is important. I may not be able to teach many lessons, but I remind him to read and do his homework because I want him to have a better future." P02

Another parent stated:

"We live from the sea, and our income is uncertain. That is why I want my daughter to study seriously. If she can read well, she can understand lessons better and continue school."
P07

These interview findings support the quantitative result showing that bonding social capital had the strongest contribution to children's literacy. Family support in coastal households was often expressed through encouragement, advice, emotional closeness, and educational aspirations. However, such support was not always accompanied by direct reading assistance because parents were constrained by work demands, limited time, and limited academic confidence.

Theme 2: Coastal Livelihood Routines as Constraints on Home Literacy Support

Although parents valued education, many of them faced difficulties in regularly assisting children's reading at home. Fishing-related livelihoods required parents to work early in the morning, late at night, or according to weather and sea conditions. This made home literacy support inconsistent. One parent described:

"Sometimes I leave very early, before my child wakes up. When I come home, I am already tired. I ask whether the homework is done, but I cannot always accompany the reading."
P03

Another parent said:

“The problem is not that we do not care. We care, but our work depends on the sea. When the catch is uncertain, our mind is also focused on daily needs.”

P11

These statements explain why some children received emotional support but still showed moderate or low literacy performance. The findings suggest that bonding social capital in coastal families is strong at the level of aspiration and emotional encouragement, but weaker in structured literacy practice. Parents supported education morally, but their ability to provide consistent reading guidance was limited by livelihood routines.

Theme 3: Limited Access to Reading Materials at Home

Parents also reported that reading materials at home were limited. Many children relied primarily on textbooks from school. Storybooks, children’s magazines, dictionaries, and other reading materials were rarely available in the household. For some families, buying books was not a priority because income was used for daily necessities. One parent stated:

“At home, there are only schoolbooks. We do not have many storybooks. If the teacher gives a book, then the child reads it. Otherwise, there is nothing much to read.”

P05

Another parent added:

“Sometimes my child wants a book, but we must think first about food, electricity, and school costs. Books are important, but they are not always easy for us to buy.”

P09

These qualitative findings strengthen the quantitative result in Table 8, which showed that children with access to reading materials at home had higher literacy scores. The interviews reveal that limited reading access was not merely a matter of parental neglect but was connected to economic constraints and the absence of affordable literacy resources in coastal settlements.

Theme 4: School as the Main Bridge for Literacy Development

Parents frequently described school as the most important institution for children’s literacy development. Many parents relied on teachers to teach reading, provide assignments, encourage children, and monitor learning progress. This indicates that schools functioned as a key form of bridging social capital between children, families, and wider educational opportunities. One parent explained:

“The teacher is the one who understands my child’s reading ability. I usually ask the teacher if my child is improving or not because at home I cannot always check properly.”

P01

Another parent said:

“When the teacher gives reading tasks, my child becomes more willing to read. If there is no task from school, sometimes the child prefers to play.”

P12

These findings explain why bridging social capital was significantly related to literacy in the quantitative analysis. Schools acted as literacy bridges by connecting children to reading tasks, structured learning routines, teacher feedback, and parental awareness. However, the interviews also suggest that school-based literacy efforts need stronger continuity at home and in the community.

Theme 5: Oral Traditions and Coastal Life as Informal Literacy Resources

Some parents described that children often learned through stories, conversations, and everyday experiences in coastal life. Parents and grandparents sometimes told stories about the sea, weather, fishing practices, storms, boats, and local community values. Although these practices were not always recognized as formal literacy activities, they contributed to children's vocabulary, comprehension, imagination, and contextual understanding. One parent explained:

“My child often listens to stories from his grandfather about the sea, about the weather, and about fishing in the past. He likes those stories because they are close to our life.”

P04

Another parent stated:

“Children here know many words about the sea, fish, boats, and weather. Sometimes they understand stories about the coast more easily than stories that are far from their daily life.”

P14

These findings suggest that coastal children's literacy should not be separated from local ecological and cultural knowledge. Children may show stronger comprehension when reading materials are connected to their lived experiences. This supports the idea that contextual literacy materials based on coastal life can make reading more meaningful for children in fishing communities.

Theme 6: Weak Institutional Support for Community-Based Literacy

Although family and school support were present, many parents reported limited access to broader institutional literacy programs. Public libraries, village reading corners, mobile libraries, and community literacy activities were either unavailable or irregular. This explains why linking social capital had the lowest mean score and the weakest regression coefficient in the quantitative findings. One parent said:

“There is no special reading place for children here. If there were a small library or reading corner in the village, maybe children would have more interest in reading.”

P06

Another parent stated:

“Sometimes there are programs from outside, but they do not continue for long. After the activity is finished, the children return to the same situation.”

P15

These statements indicate that institutional support for coastal children’s literacy remained limited and unsustainable. While families and schools provided important support, the absence of stable village-level or community-based literacy infrastructure weakened children’s access to wider reading opportunities.

Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative findings shows that social capital plays an important role in coastal children’s literacy, but each dimension operates differently. Bonding social capital was the strongest quantitative predictor because family encouragement and emotional support were relatively strong. However, parent interviews revealed that this support was often constrained by fishing work routines and limited parental ability to assist reading directly.

Bridging social capital was also significant because schools served as the main bridge between children and literacy resources. Parents relied heavily on teachers to develop children’s reading habits. However, the effectiveness of bridging social capital depended on how consistently schools communicated with families and created reading activities that extended beyond the classroom.

Linking social capital was significant but weaker than the other two dimensions. This was explained by the lack of formal literacy infrastructure in coastal communities, including village reading spaces, public libraries, and sustained literacy programs. Therefore, children’s literacy development depended more strongly on family and school support than on institutional networks.

Table 11. Joint Display of Quantitative and Qualitative Findings

Quantitative Finding	Qualitative Evidence	Integrated Interpretation
Most children were in the moderate literacy category	Parents reported that children read mainly schoolbooks and rarely accessed additional reading materials	Children had basic literacy skills, but limited reading exposure constrained higher-level comprehension
Bonding social capital was the strongest predictor of literacy	Parents expressed strong aspirations and emotional encouragement for children’s education	Family support is the closest and most influential literacy resource for coastal children
Family support was not always translated into direct reading assistance	Parents reported fatigue, irregular work schedules, and limited academic confidence	Bonding social capital is emotionally strong but practically constrained by coastal livelihoods
Bridging social capital significantly predicted literacy	Parents relied on teachers to guide reading and monitor learning progress	Schools function as key literacy bridges between children, families, and educational resources
Linking social capital had the weakest contribution	Parents reported limited village literacy programs, libraries, and sustained external support	Institutional support remains the weakest layer in coastal literacy ecology
Children with books at home had higher literacy scores	Parents stated that many homes only had textbooks and lacked storybooks or other reading materials	Material access to reading resources is essential for improving literacy outcomes
Contextual reading was important	Parents reported that children understood stories about the sea, fish, boats, and weather more easily	Coastal-based reading materials can strengthen children’s engagement and comprehension

The integrated findings show that coastal children’s literacy is not merely the result of individual reading ability or classroom instruction. It is produced within a social ecology shaped by

family support, livelihood conditions, school-community relations, reading access, local knowledge, and institutional availability. The findings indicate that the strongest literacy support came from families and schools, while the weakest support came from formal institutional networks. Therefore, improving coastal children's literacy requires strengthening all three layers of social capital: bonding, bridging, and linking.

The quantitative findings show that most coastal children had moderate literacy levels, with only a small proportion reaching high literacy performance. Bonding, bridging, and linking social capital were all positively related to literacy, with bonding social capital emerging as the strongest predictor. Children with better access to reading materials at home also demonstrated higher literacy scores. The qualitative findings explain these patterns by showing that parents had strong educational aspirations but were often constrained by coastal livelihood routines, limited time, and limited access to books. Schools played a central role as literacy bridges, while local oral traditions and coastal experiences provided important contextual resources for literacy learning. However, institutional support remained weak, as many communities lacked sustained literacy programs, libraries, or reading spaces. Taken together, the results suggest that coastal children's literacy develops through an ecological interaction between family, school, community, and institutional support. Literacy improvement in fishing communities therefore requires not only classroom-based reading instruction, but also family literacy support, contextual reading materials, community reading spaces, and sustainable village-level literacy programs.

Discussion

The findings show that coastal children's literacy was generally at a moderate level, with only a small proportion of students reaching high literacy performance. This pattern indicates that literacy in fishing communities should not be interpreted as a purely individual cognitive outcome, but as a result of interacting social, economic, and ecological conditions. The finding is consistent with broader evidence showing that children from socioeconomically vulnerable and geographically peripheral contexts often experience greater barriers to foundational literacy, especially when learning support and reading resources are unevenly distributed (Betthäuser et al., 2023; OECD, 2023; World Bank, 2022). In coastal communities, these barriers are intensified by household income uncertainty, parental work rhythms, limited access to books, and weak community literacy infrastructure. Thus, the moderate literacy profile reflects an ecological challenge rather than a simple deficit of children or families.

Bonding social capital emerged as the strongest predictor of coastal children's literacy. This means that close family relationships, parental encouragement, emotional support, and home-based learning attention remain the most immediate resources for children's reading development. This result aligns with studies showing that home literacy environments, parental involvement, book availability, and family reading interaction are associated with children's literacy growth (Adam et al., 2025; Lee & Moussa, 2024; Zhang et al., 2025). However, the parent interviews revealed that bonding social capital was often stronger emotionally than practically. Many parents valued schooling and encouraged children to read, but fishing schedules, fatigue, economic pressure, and limited academic confidence made regular reading assistance difficult. This explains why family support was statistically important while many children still remained in the moderate literacy category.

Bridging social capital also made a significant contribution because schools functioned as the main relational bridge between children, families, and literacy resources. Parents frequently relied on teachers to monitor reading progress, assign reading tasks, and motivate children to study. This supports the view that school-based social capital and family-school-community partnerships can strengthen children's learning when relational trust is translated into concrete educational practices (Gamoran et al., 2021; Keung & Cheung, 2023; Liu et al., 2025). In coastal settings, however, bridging capital needs to move beyond occasional communication. Schools need structured reading programs, regular parent communication, peer reading activities, and community-based reading events so that literacy development continues beyond the classroom.

Linking social capital was the weakest predictor, although it remained statistically significant. This finding indicates that coastal children's literacy was supported more by family and school relations than by wider institutional networks. Parent interviews confirmed the limited availability of village reading corners, public libraries, mobile libraries, and sustained literacy programs. Studies on coastal and ocean literacy similarly emphasize that literacy development requires institutional ecosystems connecting schools, local governments, community organizations, and environmental learning resources (Boaventura et al., 2021; Freitas et al., 2022, 2025; Shellock et al., 2024; Stefanelli-Silva et al., 2019). Therefore, the weak linking capital found in this study points to a missing layer in coastal literacy ecology: without stable village-level and external support, children's exposure to diverse reading materials remains limited.

Another important implication is that coastal literacy should be developed through contextual reading materials. Parents reported that children were more interested in texts about the sea, fish, boats, weather, coastal markets, and family livelihoods because these topics were close to their daily experience. This supports place-based and coastal literacy studies arguing that children learn more meaningfully when reading is connected to local ecological realities and community identity (Hamilton & Marckini-Polk, 2023; Saparuddin et al., 2025; Shellock et al., 2024). This study contributes to literacy research by showing how bonding, bridging, and linking social capital operate within fishing-community life. Practically, literacy programs for coastal children should combine family literacy mentoring, school-community reading activities, coastal-themed texts, village reading spaces, and sustained institutional partnerships.

Conclusion

This study demonstrates that coastal children's literacy in fishing communities is shaped by the interaction of family support, school-community relations, access to reading materials, coastal livelihood routines, and institutional resources. Quantitative findings showed that most children were at a moderate literacy level and that bonding, bridging, and linking social capital were positively associated with literacy. Bonding social capital emerged as the strongest predictor, indicating the importance of parental encouragement, emotional support, and home-based learning attention. Qualitative findings from parents or guardians explained that family aspirations were strong, but practical literacy support was often limited by fishing work schedules, fatigue, economic pressure, limited academic confidence, and scarce reading resources. Schools served as important literacy bridges, while institutional support remained the weakest layer because village literacy programs, libraries, and reading spaces were limited or unsustainable.

Several practical recommendations can be drawn from these findings. Schools in coastal areas should strengthen structured reading activities, provide coastal-themed reading materials, and build

regular communication with parents about simple home reading practices. Families can support children through realistic low-burden strategies, such as short daily reading routines, storytelling about coastal life, asking children to retell school texts, and creating a small reading corner using available materials. Village governments, literacy communities, and local education offices should develop sustained community reading spaces, mobile library services, book-sharing programs, and coastal literacy activities that connect reading with marine life, environmental care, and local livelihoods. These efforts would strengthen bonding, bridging, and linking social capital simultaneously.

The study is limited by its focus on selected coastal elementary school communities in South Sulawesi and by the use of parent or guardian interviews as the main qualitative source. Future research should involve children, teachers, community leaders, and village officials more extensively to obtain a fuller ecological picture of coastal literacy. Longitudinal and intervention-based studies are also needed to test whether family literacy mentoring, coastal-themed reading materials, and village reading programs can produce sustained improvements in children's literacy outcomes. Despite these limitations, the study offers a context-sensitive model for understanding literacy as a social-ecological outcome in fishing communities.

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