

Language Development, Social Interaction, and Psychological Well-being among Primary School Pupils

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Abstract

Original Research Article

The primary school years represent a critical developmental period during which language acquisition, social competence, and psychological well-being undergo rapid and interconnected transformation. Although each domain has been widely studied, fewer studies have examined how language development and social interaction jointly relate to psychological well-being during middle childhood, particularly in sub-Saharan African contexts. This study examined the relationship among language development, social interaction, and psychological well-being among primary school children, with social interaction tested as a potential mediating variable. The study adopted a cross-sectional survey design and used data collected from 360 primary school pupils aged 7 to 12 years across selected public and private schools in southwestern and north-central Nigeria. Data were obtained through structured questionnaires, language-related assessments, and teacher-rated social competence scales. Multiple regression and bootstrap mediation analyses were used to test the hypothesized relationships. The findings indicate that language development has a positive and statistically significant association with psychological well-being, suggesting that vocabulary depth, syntactic awareness, pragmatic competence, and narrative skills contribute to children's emotional adjustment, self-esteem, and life satisfaction. Social interaction also shows a strong positive association with psychological well-being, indicating that peer acceptance, friendship quality, and cooperative play are important protective factors. Mediation analysis further suggests that social interaction partially accounts for the association between language development and psychological well-being. Socioeconomic status emerged as a significant control variable, whereas age, gender, and family structure did not show statistically significant direct effects in the main model. The study concludes that integrated interventions targeting both language enrichment and social skills development may be more beneficial than isolated approaches for supporting psychological well-being in primary school children. The findings provide useful insights for educators, school psychologists, policymakers, and parents seeking to promote holistic child development in primary educational settings.

Keywords: language development, social interaction, psychological well-being, primary school children, peer relationships, mediation analysis, childhood mental health.

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1. Introduction

The primary school years, typically spanning ages 6 to 12, constitute one of the most important periods in child development. During this phase, children move from the relatively family-centered world of early childhood into broader social systems shaped by peer relationships, formal schooling, classroom routines, and institutional expectations. This developmental transition requires the simultaneous growth of linguistic competence, social adaptability, and emotional regulation. These domains are not independent; rather, they evolve through dynamic and reciprocal interactions across home, school, and peer environments (Bronfenbrenner, 1979; Vygotsky, 1978).

Language development during the primary school period extends beyond the acquisition of basic vocabulary and grammar. Children increasingly develop advanced discourse abilities, including narrative competence, pragmatic awareness, inferencing, perspective-taking, and metalinguistic reflection (Nippold, 2020). These skills support not only academic learning but also social participation. Children use language to negotiate friendships, interpret classroom expectations, resolve conflict, express emotions, and establish a sense of self in relation to others (Adams, 2015; Nelson & Fivush, 2004). Accordingly, language development may have implications that extend beyond literacy and academic performance into broader aspects of psychosocial adjustment.

Social interaction is likewise central during middle childhood. Peer acceptance, friendship quality, cooperative participation, and social problem-solving become increasingly salient to children's daily lives and self-evaluations (Rubin et al., 2015). Positive peer relationships can promote belongingness, emotional security, and resilience, whereas social exclusion, peer rejection, and victimization may contribute to loneliness, anxiety, and reduced self-worth (Bukowski et al., 2010; Schwartz-Mette et al., 2020). Because school is one of the principal contexts in which children spend time with age mates, it becomes a key environment for the development of both social competence and

psychological well-being.

Psychological well-being in childhood includes emotional balance, self-esteem, life satisfaction, and adaptive social-emotional functioning. It is more than the absence of clinical symptoms; it reflects a child's capacity to function positively, relate effectively with others, and experience satisfaction across important life domains (Gilman & Huebner, 2003; Suldo & Shaffer, 2008). Contemporary research increasingly recognizes that developmental outcomes in childhood are multidimensional and relational. Children's emotional well-being is shaped not only by individual characteristics, but also by the communicative and social resources available to them in everyday interaction (Eisenberg et al., 2010; Harter, 2012).

Despite the theoretical linkages among language, social interaction, and emotional adjustment, much of the literature has examined these constructs separately. Studies of language development often focus on structural skills such as vocabulary or syntax, while peer-relations research often emphasizes behavior and social acceptance without closely attending to the communicative abilities that support these outcomes. Similarly, research on child well-being often treats emotional functioning as an individual-level phenomenon without sufficiently considering the role of language and interaction in shaping it. This fragmentation leaves an important gap in understanding how linguistic competence and social participation may work together to support or constrain psychological well-being during middle childhood (Wieczorek et al., 2024).

This study addresses that gap by examining the relationship among language development, social interaction, and psychological well-being among primary school children in Nigeria. In particular, the study investigates whether social interaction may help explain part of the association between language development and psychological well-being. The study contributes to the literature in three major ways. First, it integrates three key developmental domains within a single framework. Second, it applies a mediation model to explore the possible pathway through which language development

relates to psychological well-being (Baron & Kenny, 1986; Preacher & Hayes, 2008). Third, it provides context-specific evidence from a sub-Saharan African setting, where multilingualism, educational inequality, and diverse family and school environments may shape developmental processes in distinctive ways (Bronfenbrenner & Morris, 2006).

2. Literature Review

2.1 Language Development in Primary School Children

Language development during the primary school years is marked by substantial advances in children's ability to understand and produce increasingly complex forms of speech and discourse. During this period, children move from basic conversational competence toward more decontextualized, abstract, and socially nuanced language use (Nippold, 2020). This includes growth in vocabulary breadth and depth, grammatical complexity, inferential comprehension, pragmatic competence, and narrative organization (Berman & Slobin, 2013).

Vocabulary development is central to this process. As children progress through school, they acquire words that support abstract reasoning, emotional description, academic learning, and social interpretation. Richer vocabularies enable children to participate more effectively in classroom dialogue, understand stories and explanations, and communicate feelings and intentions more precisely (Beck & McKeown, 2007). Vocabulary growth is influenced by exposure to books, adult-child conversation, schooling quality, and the linguistic environment at home.

Syntactic development also becomes increasingly sophisticated during middle childhood. Children learn to comprehend and produce more complex sentence structures, including embedded clauses, causal expressions, temporal sequencing, and contrastive constructions. These abilities support narrative coherence, academic language use, and communicative precision (Berman & Slobin, 2013). Children with stronger syntactic abilities may be better able to explain themselves, justify actions, and manage interactional demands in social and school

contexts.

Pragmatic competence is particularly important in relation to peer interaction and psychosocial adjustment. Pragmatics refers to the use of language in social context, including conversational turn-taking, topic maintenance, audience awareness, inferencing, politeness, repair strategies, and interpretation of implied meaning (Adams, 2015). Strong pragmatic skills help children manage the relational aspects of communication. In contrast, difficulties in pragmatics may result in misunderstanding, peer conflict, conversational withdrawal, or social exclusion, even when structural language skills are relatively intact (Adams et al., 2012; Wieczorek et al., 2024).

Narrative skill is another key component of language development. The ability to tell coherent stories about past events, imagined situations, and personal experiences reflects the integration of vocabulary, grammar, sequencing, inferencing, and social perspective-taking (Nelson & Fivush, 2004). Narrative competence contributes to academic participation, identity development, and emotional expression. It also allows children to make sense of social experiences and communicate them to others in meaningful ways.

2.2 Social Interaction and Peer Relationships in Middle Childhood

During middle childhood, peer relationships become more stable, meaningful, and emotionally influential. Children increasingly seek acceptance from classmates, develop close friendships, compare themselves with peers, and become sensitive to reputation and group belonging (Rubin et al., 2015). The social world of school can therefore function as a major source of support or stress.

Positive social interaction includes peer acceptance, friendship quality, cooperative engagement, prosocial behavior, and successful participation in group activities. These interactional experiences contribute to children's feelings of inclusion, competence, and emotional safety. Friendships may provide emotional support, companionship, opportunities for problem-solving, and protection

against loneliness (Bukowski et al., 2010). Cooperative participation also promotes communication, empathy, and shared meaning-making.

At the same time, negative peer experiences can undermine adjustment. Social exclusion, bullying, rejection, ridicule, and relational aggression are associated with internalizing problems, low self-esteem, and school-related distress (Schwartz-Mette et al., 2020). Children who are socially isolated may have fewer opportunities to practice communicative and emotional skills, which can intensify developmental difficulties over time. In contrast, friendship support and positive peer experiences can buffer children against emotional distress and support adaptive development (Bukowski et al., 2010).

Research further indicates that peer interaction and mental health influence one another reciprocally. Children with emotional difficulties may struggle to form positive peer relationships, while children with poor peer relationships may experience worsening emotional well-being over time (Schwartz-Mette et al., 2020). For this reason, social interaction should be understood not simply as an outcome of development, but also as an active process shaping children's psychological adjustment.

2.3 Psychological Well-Being in Childhood

Psychological well-being in childhood is a multidimensional construct that includes emotional regulation, positive self-regard, subjective life satisfaction, and the ability to function adaptively in social and school contexts. It is not limited to the absence of clinical disorder. Rather, it encompasses positive indicators of thriving, resilience, and emotional health (Suldo & Shaffer, 2008).

Self-esteem reflects children's evaluative sense of personal worth and competence. During the primary school years, self-esteem becomes increasingly shaped by peer comparison, school performance, feedback from adults, and success in social situations (Harter, 2012; Rosenberg, 1965). Life satisfaction refers to children's global evaluation of their lives across domains such as school, family, and

friendships (Gilman & Huebner, 2003; Huebner, 2004). Emotional regulation refers to the ability to recognize, manage, and respond adaptively to feelings, and this ability is strongly associated with adjustment outcomes in childhood (Eisenberg et al., 2010; Garnefski et al., 2001).

These aspects of well-being are interrelated. Children who can express themselves clearly, maintain positive relationships, and feel included in their social worlds are more likely to report positive adjustment. Conversely, children who struggle to communicate or who experience repeated relational difficulty may be more vulnerable to emotional distress (Suldo & Shaffer, 2008).

2.4 The Intersection of Language, Social Interaction, and Well-Being

The literature increasingly suggests that language development, social interaction, and psychological well-being are closely connected. Language provides the means through which children participate in social life, build relationships, express needs, negotiate conflict, and internalize culturally shaped ways of thinking and regulating emotion (Vygotsky, 1978, 1987). Social interaction provides the context in which language is practiced, refined, and socially evaluated. Together, these processes influence how children experience themselves and others.

Children with stronger language skills may be better equipped to enter conversations, sustain friendships, interpret others' intentions, and respond appropriately in socially demanding situations. These social advantages may, in turn, support emotional well-being by increasing belongingness and reducing stress (Guhn, 2016; Wiecezorek et al., 2024). At the same time, language may also support well-being directly by enabling self-expression, reflective thought, inner speech, and emotional meaning-making (Nelson & Fivush, 2004; Winsler et al., 2014).

Thus, one plausible developmental pathway is that language development contributes to psychological well-being both directly and indirectly through improved social interaction. This proposition provides the conceptual basis for the mediation

model tested in the present study.

2.5 Empirical Evidence and Research Gap

Existing studies generally support positive associations among language competence, social functioning, and emotional adjustment. Children with stronger communicative skills often show better peer competence and fewer adjustment difficulties (Wieczorek et al., 2024). Similarly, children with better friendship quality and peer acceptance typically report more favorable well-being outcomes (Bukowski et al., 2010; Schwartz-Mette et al., 2020). However, several gaps remain.

First, many studies focus on one or two of these domains rather than examining all three in a single framework. Second, a large proportion of the literature comes from high-income Western contexts, leaving limited evidence from sub-Saharan Africa. Third, relatively few studies have examined whether social interaction helps explain the association between language development and psychological well-being during middle childhood. Finally, many studies rely on single-informant data or narrowly defined language measures. The present study addresses these gaps by bringing together language development, social interaction, and psychological well-being in one model using data from primary school children in Nigeria and by testing a statistical mediation pathway.

3. Theoretical Framework

This study is guided by Vygotsky's sociocultural theory and Bronfenbrenner's bioecological model of human development. Vygotsky's sociocultural theory emphasizes that higher psychological processes emerge first through social interaction and are later internalized by the child (Vygotsky, 1978, 1987). Language is central in this process because it functions both as a tool of communication and as a

tool of thought. Through interaction with adults and peers, children learn not only words and structures but also socially organized ways of reasoning, regulating emotion, and responding to problems (Winsler et al., 2014). As external language becomes internalized, children develop private and inner speech that support self-control, reflection, and psychological adaptation (Vygotsky, 1987).

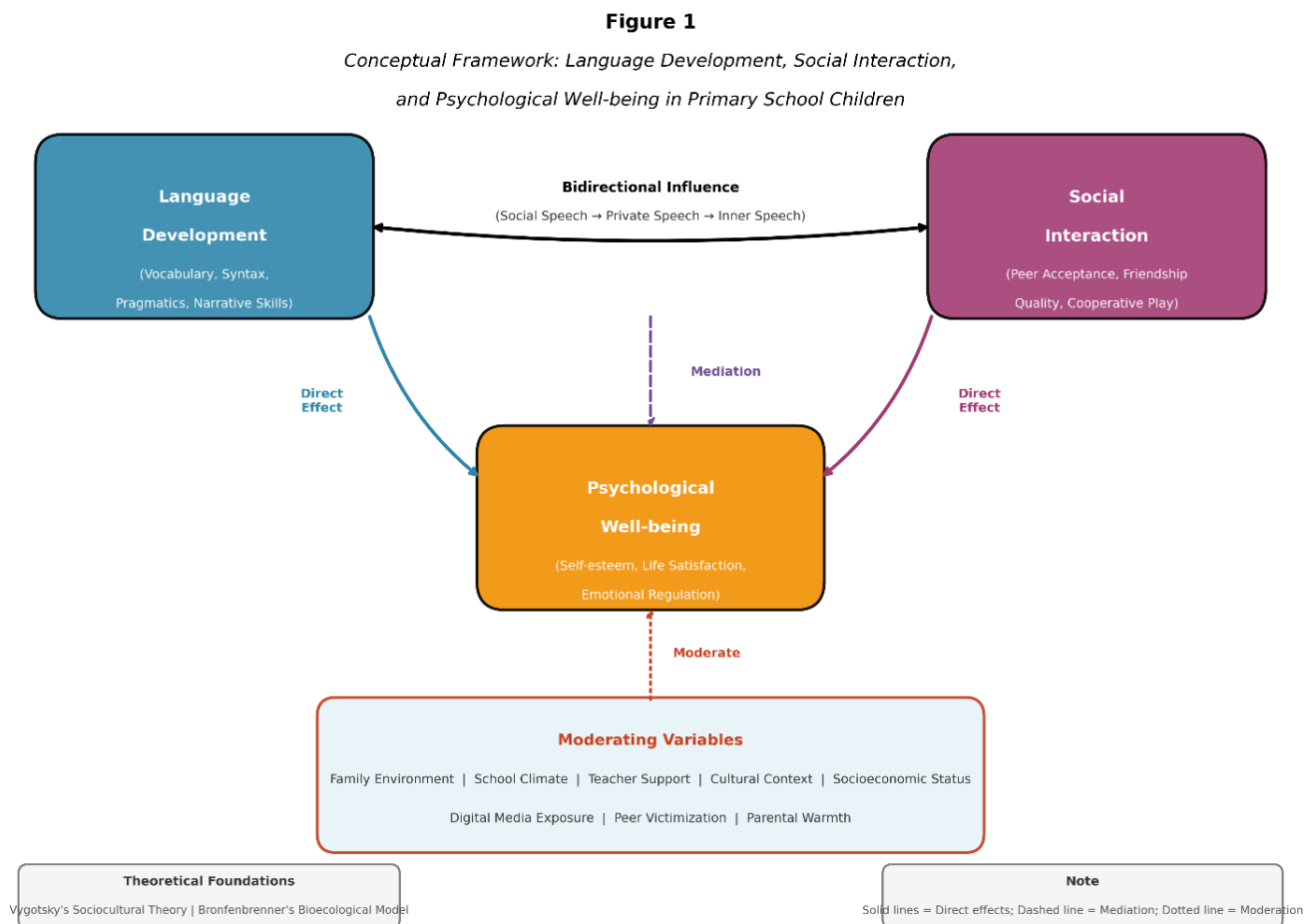
This perspective suggests that language development is relevant to psychological well-being not only because it supports communication with others, but also because it contributes to internal emotional and cognitive regulation. Moreover, because social interaction is the context in which these processes unfold, peer relationships may play an important mediating role between language skills and well-being (Vygotsky, 1978).

Bronfenbrenner's bioecological model complements this perspective by locating child development within nested systems of influence, including family, school, peer group, community, and broader cultural structures (Bronfenbrenner, 1979, 1994). The model highlights that children's developmental outcomes are shaped through ongoing interactions between the child and their environments. Language use, social opportunities, educational resources, and emotional support are all embedded in these environmental systems (Bronfenbrenner & Morris, 2006).

Taken together, the two frameworks support the proposition that language development, social interaction, and psychological well-being are interconnected developmental processes. The study therefore proposes that:

1. language development is positively associated with psychological well-being;
2. social interaction is positively associated with psychological well-being; and
3. social interaction partially mediates the relationship between language development and psychological well-being.

This framework is illustrated in Figure 1.



4. Materials and Methods

4.1 Research Design

The study adopted a cross-sectional survey design using primary data collected from primary school children, their teachers, and parents. The design was considered appropriate for examining associations among language development, social interaction, and psychological well-being at a single point in time. While a cross-sectional design does not permit strong causal inference, it can provide useful evidence about patterns of association and possible indirect pathways that may be examined more rigorously in future longitudinal research (Baron & Kenny, 1986;

Preacher & Hayes, 2008).

4.2 Study Area and Population

The study was conducted in selected primary schools in southwestern Nigeria and north-central Nigeria, specifically in Osun, Oyo, Benue, and Kwara States. These states were included to reflect socioeconomic, linguistic, and institutional diversity across urban, semi-urban, and rural settings. The target population consisted of pupils in Primary 3 to Primary 6, generally aged 7 to 12 years. This age range was selected because middle childhood is a period in

which language ability, peer relations, and self-reported well-being can be meaningfully assessed (Harter, 2012; Nippold, 2020).

4.3 Sample and Sampling Technique

A multistage sampling approach was used. First, two local government areas were selected from each participating state. Second, public and private primary schools were selected from each local government area. Third, intact classrooms were chosen, and pupils were sampled from these classrooms. The intended sample size was 384 pupils, while the final analytical sample comprised 360 pupils after excluding cases with substantial missing or inconsistent responses. This represented a response rate of 93.8%.

4.4 Data Sources and Instruments

Data were drawn from three principal sources: pupil self-report measures, teacher ratings, and parent-provided background information. This multi-informant approach was intended to reduce common method bias and provide a broader view of the constructs under study.

Psychological well-being was measured as a composite construct that included indicators of self-esteem, life satisfaction, and emotional regulation. Self-esteem was assessed using items adapted from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Life satisfaction was measured using items adapted from the Students' Life Satisfaction Scale (Huebner, 2004). Emotional regulation was assessed using child-appropriate items intended to capture adaptive emotional functioning, drawing conceptually on work in this area (Eisenberg et al., 2010; Garnefski et al., 2001). Scores were standardized and combined into a composite index of psychological well-being.

The reported internal consistency for the composite measure was acceptable ($\alpha = .84$).

Language development was operationalized as a composite of vocabulary knowledge, syntactic awareness, pragmatic competence, and narrative skill. Vocabulary and syntax were assessed through structured tasks, while pragmatic competence involved socially contextualized items or scenarios. Narrative skill was evaluated using teacher ratings adapted from narrative-language assessment procedures. The reported internal consistency for the composite language measure was $\alpha = .81$. The inclusion of pragmatic and narrative components aligns with evidence that socially embedded dimensions of language are particularly relevant to peer competence and adjustment (Adams, 2015; Wieczorek et al., 2024).

Social interaction was measured through teacher ratings of peer acceptance, friendship quality, and cooperative participation. These dimensions were combined into a composite social interaction score with reported internal consistency of $\alpha = .87$. These dimensions are consistent with established peer-relations literature emphasizing friendship quality, social acceptance, and cooperative engagement as central aspects of children's social functioning (Bukowski et al., 2010; Rubin et al., 2015).

Control variables included age, gender, socioeconomic status, and family structure. Socioeconomic status was measured as a standardized index derived from parental education, occupation, and household income. Family structure was coded as intact versus non-intact household arrangement. These controls were included because prior research indicates that child adjustment can be shaped by contextual and demographic factors in addition to individual competencies (Bronfenbrenner & Morris, 2006; Harter, 2012).

4.5 Measurement of Variables

Table 1: Measurement of Variables

Variable	Symbol	Measurement	Expected Sign	Source/Adaptation
Psychological Well-Being	PWB	Composite of self-esteem, life satisfaction, and emotional regulation indicators	—	Adapted from Rosenberg (1965); Huebner (2004)
Language Development	LD	Composite of vocabulary knowledge, syntactic awareness, pragmatic competence, and narrative skill	Positive	Structured assessment and teacher-rated language indicators
Social Interaction	SI	Composite of peer acceptance, friendship quality, and cooperative participation	Positive	Teacher ratings/adapted peer competence items
Age	AGE	Chronological age in years	Control	Demographic questionnaire
Gender	GEN	Dummy variable (0 = female, 1 = male)	Control	Demographic questionnaire
Socioeconomic Status	SES	Standardized index of parental education, occupation, and household income	Positive	Parent questionnaire
Family Structure	FAM	Dummy variable (0 = non-intact, 1 = intact)	Positive	Parent questionnaire

4.6 Model Specification

To estimate the direct associations between the explanatory variables and psychological well-being, the following regression model was specified:

$$PWB_i = \beta_0 + \beta_1 LD_i + \beta_2 SL_i + \beta_3 AGE_i + \beta_4 GEN_i + \beta_5 SES_i + \beta_6 FAM_i + \varepsilon_i$$

Where:

- (PWB_i) = psychological well-being of child (i)
- (LD_i) = language development
- (SL_i) = social interaction
- (AGE_i) = age
- (GEN_i) = gender
- (SES_i) = socioeconomic status

- (FAM_i) = family structure
- (ε_i) = error term

To test the possible mediating role of social interaction, the following equations were estimated, following the general logic of mediation analysis outlined by Baron and Kenny (1986) and supplemented by bootstrap inference recommended by Preacher and Hayes (2008):

$$PWB_i = c_0 + c_1 LD_i + \gamma Controls_i + \varepsilon_{1i}$$

(Total effect)

$$SL_i = a_0 + a_1 LD_i + \gamma Controls_i + \varepsilon_{2i}$$

(Path a)

$$PWB_i = b_0 + b_1 LD_i + \gamma Controls_i + \varepsilon_{3i}$$

(Path b and direct effect)

In this framework, (c_1) represents the total association between language development and psychological well-being, (a_1) represents the association between language development and social interaction, (b) represents the association between social interaction and psychological well-being after adjusting for language development, and (c') represents the direct association between language development and psychological well-being after accounting for social interaction. The indirect effect was estimated as $(a_1 \times b)$, and bootstrap confidence intervals were used to assess statistical significance (Preacher & Hayes, 2008).

4.7 Estimation Technique

The analysis proceeded in several stages. First, descriptive statistics were computed to summarize the distribution of the variables. Second, Pearson correlation analysis was conducted to examine bivariate relationships and to screen for possible multicollinearity. Third, ordinary least squares regression with robust standard errors was used to estimate the direct associations between language development, social interaction, and psychological well-being. Fourth, mediation analysis was conducted using bootstrap resampling with 5,000 iterations to estimate the indirect effect. Variance inflation factor values were examined to assess

multicollinearity, consistent with standard multivariate practice (Hair et al., 2019).

4.8 Ethical Considerations

The study states that ethical approval was obtained from the relevant institutional research ethics structures and that permission was received from relevant school authorities before data collection. The study further indicates that informed consent was obtained from parents or guardians, assent was obtained from participating children, participation was voluntary, and data were anonymized and securely stored. These procedures are consistent with ethical expectations for research involving minors. For formal publication, the approving institution and ethics approval number should be explicitly stated.

4.9 Methodological Limitations

The study has several limitations. First, the cross-sectional design limits causal interpretation. The mediation model should therefore be interpreted as a statistical model of indirect association rather than proof of temporal causation (Maxwell & Cole, 2007). Second, some measures relied on teacher ratings and child self-report, which may introduce subjective bias. Third, the study was conducted in selected states and may not generalize to all Nigerian contexts or to other countries. Fourth, language development was assessed largely through English-based or school-related measures, which may not fully capture the competencies of children from multilingual or non-English-dominant homes. Finally, fuller documentation of instrument adaptation, validation, and scoring procedures would strengthen the methodological transparency of the study.

5. Results

5.1 Descriptive Statistics

This section presents descriptive statistics for the variables used in the analysis. The study was based on 360 pupils aged 7 to 12 years.

Table 2: Descriptive Statistics of Study Variables

Variable	N	Mean	SD	Minimum	Maximum
Psychological Well-Being	360	21.429	5.848	8.000	39.799
Language Development	360	22.147	7.388	5.000	43.679
Social Interaction	360	17.523	5.309	5.000	32.670
Age	360	9.356	1.515	7.000	12.000
Socioeconomic Status	360	0.083	0.985	-2.697	2.632

The descriptive results indicate notable variation across the sample. Psychological well-being, language development, and social interaction all showed broad score ranges, suggesting substantial individual differences in emotional adjustment, communicative competence, and peer engagement. Age distribution was consistent with the targeted middle-childhood sample. Socioeconomic status, as a standardized variable, showed variation across

household backgrounds.

5.2 Correlation Analysis

Pearson correlation analysis was conducted to examine preliminary relationships among the main variables.

Table 3: Correlation Matrix

Variable	PWB	LD	SI	AGE	SES	FAM
PWB	1.000					
LD	.469**	1.000				
SI	.519**	.403**	1.000			
AGE	-.029	.040	.078	1.000		

SES	.345**	.301**	.368**	.002	1.000	
FAM	.134*	.107*	.083	-.051	.090	1.000

Note. PWB = psychological well-being; LD = language development; SI = social interaction; AGE = age; SES = socioeconomic status; FAM = family structure. * $p < .05$, ** $p < .01$.

The correlation results show that language development and social interaction are positively associated with psychological well-being. Language development is moderately correlated with social interaction, consistent with the expectation that communication skills are related to peer functioning. Socioeconomic status is also positively associated with the main variables, while age shows negligible associations. The correlations among the predictors

were below conventional multicollinearity thresholds (Hair et al., 2019).

5.3 Multiple Regression Results

Multiple regression analysis was used to estimate the direct associations between the explanatory variables and psychological well-being.

Table 4: OLS Regression Results Predicting Psychological Well-Being

Variable	Coefficient	Std. Error	t-value	p-value
Constant	11.355	1.793	6.333	.000
Language Development (LD)	.223	.038	5.859	.000
Social Interaction (SI)	.398	.057	7.030	.000
Age	-.256	.162	-1.579	.114
Gender	-.163	.509	-0.321	.748
Socioeconomic Status (SES)	.719	.279	2.580	.010
Family Structure	.795	.525	1.515	.130

Note. ($R^2 = .372$), Adjusted ($R^2 = .361$), ($F(6,353) = 33.63$), ($p < .001$). Robust standard errors reported.

The regression results indicate that both language development and social interaction are positively and

significantly associated with psychological well-being. Social interaction shows the larger coefficient,

suggesting that peer-related functioning may be more proximally related to well-being than language development in this model. Socioeconomic status is also positively associated with well-being. Age, gender, and family structure are not statistically significant in the main model.

5.4 Mediation Analysis

A bootstrap mediation analysis was conducted to examine whether social interaction statistically mediates the association between language development and psychological well-being.

Table 5: Bootstrap Mediation Analysis Results

Effect Path	Coefficient	Std. Error	z-value	p-value	95% CI
Total Effect (c): LD → PWB	.315	.037	8.402	.000	[.242, .388]
Direct Effect (c'): LD → PWB SI	.223	.038	5.859	.000	[.148, .297]
Indirect Effect (a × b): LD → SI → PWB	.093	.019	4.773	.000	[.058, .132]
Path a: LD → SI	.232	.036	6.502	.000	[.162, .302]
Path b: SI → PWB LD	.398	.057	7.030	.000	[.287, .509]

Note. Bootstrap samples = 5,000. CI = confidence interval.

The mediation results suggest that social interaction partially accounts for the association between language development and psychological well-being. The total association between language development and well-being is positive and significant. When social interaction is included in the model, the direct association remains significant but is reduced in magnitude, indicating partial mediation. The indirect effect is statistically significant because the bootstrap confidence interval does not include zero (Preacher & Hayes, 2008).

The proportion of the total association accounted for by the indirect path is approximately 29.5% ((.093/.315)). This suggests that part of the relationship between language development and well-being may operate through social interaction. However, because the data are cross-sectional, this result should be interpreted cautiously as evidence of

statistical mediation rather than confirmed developmental sequencing (Maxwell & Cole, 2007).

5.5 Robustness Checks

Additional analyses were conducted to examine the stability of the findings. The main pattern of results remained similar when standardized coefficients were examined, when alternative control specifications were used, and when the language development composite was disaggregated into subcomponents. Pragmatic competence showed the strongest association with psychological well-being among the language dimensions, followed by vocabulary knowledge. This pattern is consistent with prior literature emphasizing the social relevance of pragmatic skill (Adams, 2015; Wieczorek et al., 2024). The consistency of these patterns provides

some support for the robustness of the main findings.

6. Discussion

6.1 Interpretation of Findings

The findings of this study support the view that language development and social interaction are both meaningfully related to psychological well-being during the primary school years. Children with stronger language-related abilities tend to report more favorable psychological adjustment, and children with more positive peer interaction also tend to show better well-being outcomes. These findings are consistent with developmental perspectives that regard communication and social participation as central to emotional adaptation (Vygotsky, 1978; Winsler et al., 2014).

The positive association between language development and psychological well-being may reflect several processes. Children with stronger language abilities may be better able to describe feelings, seek help, interpret social situations, and regulate internal states through verbal reflection (Nelson & Fivush, 2004). Language may also facilitate classroom participation and academic confidence, which can contribute indirectly to positive self-evaluation (Nippold, 2020).

The stronger association observed for social interaction suggests that peer functioning may be especially important for emotional well-being during middle childhood. Positive peer experiences can provide validation, belonging, companionship, and opportunities for collaborative meaning-making. Because children's self-concepts become increasingly shaped by peer feedback during these years, social interaction may act as a particularly immediate predictor of how children feel about themselves and their lives (Bukowski et al., 2010; Harter, 2012).

The mediation finding suggests that one part of the association between language development and psychological well-being may operate through social interaction. Children with stronger language abilities may be better positioned to enter conversations, sustain friendships, cooperate with peers, and

manage interpersonal difficulties. These social advantages may then support emotional well-being. At the same time, the persistence of a significant direct association indicates that language development may also support well-being through mechanisms beyond peer interaction alone, such as self-regulation and emotional articulation (Vygotsky, 1987; Winsler et al., 2014).

6.2 Theoretical Implications

The findings lend support to Vygotskian and ecological perspectives on development. From a sociocultural standpoint, language is both a social and psychological tool. Its role in communication helps children navigate peer life, while its role in internalization supports self-regulation and reflective functioning (Vygotsky, 1978, 1987). From a bioecological perspective, the findings underscore the importance of proximal processes within school and peer settings, while also demonstrating that broader contextual resources, such as socioeconomic status, remain relevant (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006).

The significance of socioeconomic status suggests that children's communicative, social, and emotional outcomes are shaped not only by individual skills but also by family-based resources and opportunities. This reinforces the need to understand child well-being as embedded in broader educational and social inequality.

6.3 Practical Implications

The findings have important implications for educators, school counselors, speech-language specialists, and policymakers. First, language enrichment should not be viewed only as an academic concern. Supporting vocabulary, narrative ability, and pragmatic competence may also have social-emotional benefits (Adams, 2015; Nippold, 2020). Second, social interaction should be actively fostered in school through cooperative learning, peer-assisted tasks, inclusive classroom practices, and social-emotional learning activities (Erol & Köksal, 2025).

Schools may benefit from integrated interventions that address communication, peer relations, and emotional adjustment together rather than as separate domains. Children with communicative difficulties may especially need early support because problems in language use can have cascading consequences for peer inclusion and well-being (Adams et al., 2012; Wieczorek et al., 2024).

6.4 Methodological Considerations

While the study offers useful insights, the cross-sectional design limits causal interpretation. The statistical mediation model is suggestive but cannot confirm temporal ordering (Maxwell & Cole, 2007). In addition, some measures appear to rely on adapted instruments, and fuller documentation of these adaptations would improve transparency and replicability. Future studies should use longitudinal or mixed-method designs and provide more detailed psychometric evidence, especially in multilingual African contexts.

7. Conclusion and Recommendations

7.1 Conclusion

This study examined the relationship among language development, social interaction, and psychological well-being among primary school children in Nigeria. The findings indicate that language development and social interaction are both positively associated with psychological well-being and that social interaction may partially account for the association between language development and well-being. Socioeconomic status also emerged as a significant contextual factor.

The study therefore supports a holistic view of child development in which linguistic, social, and emotional processes are closely interconnected. Language appears to matter not only for academic success but also for children's ability to participate meaningfully in peer life and to maintain positive psychological functioning (Vygotsky, 1978; Wieczorek et al., 2024).

7.2 Recommendations

Based on the findings, the following recommendations are offered.

First, schools should integrate language development and social-emotional learning in classroom practice. Activities such as collaborative storytelling, guided discussion, peer-assisted learning, and dramatic role-play can simultaneously build communicative competence and social understanding (Adams, 2015; Nippold, 2020).

Second, teachers should promote peer-supportive classroom environments through cooperative learning structures, inclusive participation, and conflict-resolution support. These practices may strengthen social interaction and reduce relational stressors associated with poor well-being (Bukowski et al., 2010; Erol & Köksal, 2025).

Third, early identification and support should be provided for children with language difficulties, especially pragmatic difficulties, given their likely implications for friendship formation and adjustment (Adams et al., 2012; Wieczorek et al., 2024).

Fourth, parents and caregivers should be supported in creating language-rich home environments through conversation, storytelling, shared reading, and emotionally responsive communication. Such home practices may contribute to both linguistic growth and emotional security (Nelson & Fivush, 2004).

Finally, educational policy should address structural inequalities that limit access to supportive developmental environments. Because socioeconomic status was significantly associated with well-being in this study, interventions should be designed with attention to material disadvantage and unequal educational opportunity (Bronfenbrenner & Morris, 2006).

7.3 Limitations and Future Research

This study is limited by its cross-sectional design, selected geographic scope, and incomplete documentation of some instrument adaptations. Future research should employ longitudinal designs

to examine temporal pathways among language, peer relations, and well-being (Maxwell & Cole, 2007). More work is also needed in multilingual African contexts to validate culturally appropriate measures of language development and child well-being. Comparative studies across public and private schools, rural and urban settings, and different language backgrounds would further enrich understanding of these developmental processes.

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