



## Preschool teachers' simultaneous use of L1 and L2 with dual language learners to bridge L1 to connect with L2: Evidence from Ghana

<sup>1</sup>Stephen Ntim 

<sup>1</sup>Department of Social Science Education

Faculty of Education, Catholic University of Ghana, Fiapre-Sunyani

<sup>1</sup>Primary author: [stephennitim58@gmail.com](mailto:stephennitim58@gmail.com), [stephen.ntim@cug.edu.gh](mailto:stephen.ntim@cug.edu.gh)

**Abstract** – This study examined the degree to which preschool teachers' simultaneous use of L1 and L2 pedagogical practices support Akan (L1) and English (L2) dual language learners' linguistic development at the kindergarten level in Ghana. Using a pre-test-posttest experimental design, the study investigated teachers' responsive practices that facilitate the connection from L1 to L2. The experimental group taught by teachers with linguistic responsive practices, such as reading books concurrently in L1 and L2 to children, reading poems to expose children to sounds of L1 and L2, utilising dual language learners' L1 language as resources in the learning process and encouraging higher level thinking in both L1 and L2, outperformed the control group taught with only L2 with no linguistic responsive practices. There was a significant difference observed in the scores for the experimental group ( $M = 80.10, SD = 5.753$ ) and the control group ( $M = 56.24, SD = 8.304$ ) for all the five measurement constructs at  $t(198) = 23.62, p < 0.001$ . This supported the evidence that when L1 and L2 are simultaneously designed for dual language learners at the preschool level, it facilitates the bridging of L1 to connect with L2.

**Keywords:** Dual language learners, First language, Linguistic responsive practices, Preschool teachers, Second language

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### I. INTRODUCTION

GHANAIAN preschool and primary education have always been bilingual, if not multilingual. Schoolchildren in Ghana and many African nations could generally be described as Dual Language Learners. Remarkable achievement to expand access to primary education in Ghana has increased net enrollment between 1999 and 2015 from 61 percent to 91 percent (UNESCO Institute for Statistics, 2016), yet this has not matched with foundational reading skills. Many children in Ghana struggle with comprehension in both L1 (native/maternal language) and L2 (English) (Ghana Education Service et al., 2016). Children defined as 'Dual Language Learners' learn a second language besides their maternal/native language, such as English. These children learn this second language (L2) either concurrently or sequentially with language used in the home (L1) (Gutiérrez, Zepeda, & Castro, 2010). This phenomenon is a growing concern in multicultural societies' educational systems, such as the United Kingdom and the United States, with a large influx of immigrant families. Educational researchers and practitioners in such jurisdictions are faced with how to cater for students who are not proficient enough in English and are being taught by monolingual English-speaking teachers who have no training in bilingualism (Buisse, Castro, West, & Skinner, 2005; Karabenick & Clemens Noda, 2004; Walker, Shafer, & Iiams, 2004). Additionally, empirical findings are consistent in that high-quality preschool education with early proficient linguistic and literacy skills, such as alphabetic knowledge and awareness of English phonology, are highly correlated to later reading ability (National Early Literacy Panel, 2009). Besides, when home languages of children are supported at the

preschool level, it becomes beneficial to dual learners' home language development (Barnett, Yarosz, Thoms, Jung, & Blanco, 2007; Buisse, Peisner-Feinberg, Paez, Hammer, & Knowles, 2014; Farver, Lonigan, & Eppe, 2009), which in turn becomes the foundation for English language acquisition (Dixon et al., 2012; Hammer, Lawrence, Davison, & Miccio, 2009; Riches & Genesee, 2006). The irony is that in the current literacy development literature, the trends claiming to embody the 'science of reading' narrowly focus on partial aspects of literacy (Gonzales & Miller, 2020), failing to represent what constitutes the entire comprehensive literacy skills typical with what the reading science has identified. Besides, attempts to foster development in literacy and its pedagogy for dual language learners are generally framed based on monolingual English speakers, thus further narrowing literacy development and instruction to only English reading (Bassok, Latham & Roren, 2016; Miller & Almon, 2009). This lapse is particularly problematic given that education at the preschool level is crucially essential in promoting young children's early language and literacy skills, including multilingual and multiliteracy skills of dual-language learners. When preschool education supports children's home and cultural backgrounds, it positively impacts the later academic success of dual language learners (Stanos, 2017). On the other hand, when these connections are absent, not only do dual language learners suffer home language loss, but they are also denied the economic and cognitive benefits of bilingualism. More importantly, it could exert a less favorable impact, such as obstructing deep family connections and, more importantly, a negative later literacy development (Anderson, 2012; Duran et al., 2013; Hammer et al., 2014; Wong-Fillmore, 1991; 2000).

A similar scenario is encountered in other jurisdictions in many parts of Africa and Ghana. In many African nations and communities, such

as Ghana, even though one common native language, such as Akan, Dagbani, or Ewe, is likely to be spoken in some communities, many children also have a maternal/native language- the language a child has learned from birth and therefore speaks that language better (Matsuura, 2008). Such native language constitutes the basis for the child's sociolinguistic identity. Ghana, a multilingual nation, is estimated to have eighty spoken languages (Eberhard., Simons, & Charles, 2023), with English as the official language and lingua franca and Akan as the most widely spoken L1. Ghana also has more than seventy (70) ethnic groups. Each of these has its distinct language. The official language education policy in Ghana specifies using a familiar local language (the most common Ghanaian language in the community where the school is located) during the first five years (from kindergarten to primary 3). During these five years, preschool and infancy-level teachers must introduce children to English as part of the curriculum.

Notwithstanding this directive, a false impression about bilingualism abounds in many jurisdictions, including Ghana. The most prevalent of this false impression is that children naturally 'pick up' new language faster. Therefore, exposing children to more English is better than bilingualism since the latter confuses children because it leads them to develop weak linguistic skills in both Language 1 (native) and Language 2 (English) (Soltero, 2011). Empirical studies over the last 60 years, however, refute such claims. Rather, findings demonstrate the cognitive, academic, socioemotional as well as economic benefits of bilingualism (especially L1) as an effective bridge to the learning of L2 (Callahan & Gándara, 2014; Grosjean, 2021; Lindholm-Leary, 2016; Krizman, Shook, Skoe, & Kraus, 2012;).

## II. PROBLEM STATEMENT

Effectively transitioning from L1 to L2 to foster effective learning of dual learners at the preschool level cannot be underestimated. This transitioning, in addition to home environmental factors, is also critically dependent on teacher linguistic responsive strategies (Brook et al., 2016). Empirical studies are consistent that in the early years, children developing oral language skills, for example, significantly fosters linguistic proficiency, especially in such areas as vocabulary knowledge, both receptive and expressive, awareness of syntax and processes in narrative discourse (Dickinson and Porche, 2011; Roskos et al., 2009; Whorall and Cabell, 2016). Additionally, multiple linguistic dimensions, including phonology, morphology, semantics, syntax, and pragmatics, are expected to be developed during preschool to lay strong foundations for effective communication. In Ghana and Africa, many empirical studies have been conducted on language use (Tackie et al., 2015; Davis & Agbenyega, 2012; Rosekran, Sherris, & Chattry-Komarek, 2012; Benson, 2012; Trudell, 2009). The focus of many of these studies, however, has been limited to either how native/maternal language (L1) fosters educational progress or, the reason underlying why the application of mother tongue policy has failed or the effectiveness of its implication or the rationale for most African elite holding on to English-only medium of Instruction (EMoI) (Benson, 2012; Brock-Utne, 2007). Minimal studies have been conducted in the study area to examine preschool teachers' linguistic pedagogical practices specifically. These practices include incorporating children's home/tribal languages into learning, providing scaffolding strategies supporting children's level of English to respond with comments or questions (Mortlock, 2014), and inviting children to share experiences or objects with the class while the class may respond (Murphy, 2003). Regardless of the few studies conducted in the study area, the extant literature highlights teacher facilitation as critical to developing children's oral language (e.g., Mortlock, 2014; Murphy, 2003). Besides, reading skills among Ghanaian preschool children have been consistently weak, making it imperative for governmental policy intervention to improve reading outcomes (cf. Ghana T2E+ Impact Evaluation Baseline Report). Additionally, many of the empirical studies on this topic were conducted from adult perspectives with little or no involvement of the children themselves (Larson, Barrett, and McConnell (2020), Lynch (2011), Norling (2014),

and Takeuchi and Ahn (2019). This study was conducted to fill these gaps.

## III. SIGNIFICANCE OF THE STUDY

Robust reading skills are considered critical not only to school success but also to success in life. Given that reading performance among preschool learners continues to be persistently weak and therefore, improving outcomes in reading continues to become a central governmental policy, it is hoped that the outcome of this study will be helpful in education stakeholders- teachers, parents, the Ghana Education Service, the Ministry of Education. Secondly, this study's findings will illuminate teachers' pedagogical strategies to scaffold early-grade learners' reading skills, especially how to teach transferable language to foster L2 acquisition effectively. 2014, Ghana launched the National Early Childhood Care and Development (ECCD). The focus was on kindergartens and the expansion of Free Universal and Compulsory Basic Education. Consequently, addressing quality challenges at the preschool level through the enhancement of teaching practice and its alignment with the national curriculum, especially Fast Track Transformational Teaching, continues to be a top priority in Ghana. Based on these, the findings from this study will be beneficial to improving preschool teachers' pedagogical practice with Dual Language Learners to make effective transitioning/bridging from L1 to L2 without compromising either of the two languages.

## IV. THEORETICAL FRAMEWORK

### Ghanaian Preschool Context

Ghana is located on the West African coast and is a former colony of Britain, which used to be called the Gold Coast. It gained independence in 1957. Economically, Ghana is described as a 'lower-middle-income nation'. The World Bank puts Ghana's life expectancy 2024 as 65.17, a 0.36% increase from 2023, with a projected GDP of US\$ 306.1 (data.worldbank.org). With Education Act 2008 (Act 778) in Ghana, Kindergarten (KG) was provided with legal backing to become a core part of formal basic education, commencing from 4 years of age with Primary 1 starting at age 6. In terms of gender parity at the kindergarten level, for example, there is equality in the number of boys and girls. There is a high demand for preschool education in Ghana, especially KG. Significant gains have been made at the KG level, with gross enrollment across genders estimated at 1.8 million (EMIS, 2017/18).

Notwithstanding the increase in enrolments, there are still children between the ages of 4-5 who should be in the KG. Still, they are not. The net enrollment of children between 4- and 5-years attending KG as of 2017/18 was 75 percent (1.2 million), much lower than the gross enrollment, indicating that some children are either over/under age. It is also estimated that 85% of KG teachers trained to manage this level are perceived to have limited play-based learning knowledge with insufficient Teaching Learning Materials. Every 7 out of 10 Ghanaian children in KG are developmentally on track socio-emotionally and cognitively. Ghana's education budget at the KG level is estimated to be 6 percent. (<https://ges.gov.gh>). However, many Ghanaian preschool children struggle with environmental risks, such as poverty, lack of and low at-home parental stimulation, and opportunities, such as high preschool participation rates (Mccoy & Wolf, 2018). Based on some of the environmental risks, we examine some of the theories, such as the bioecological systems theory (Bronfenbrenner & Morris, 2006), that suggest the inextricable connection between home and family environmental backgrounds and the broader cultural affordances, norms, and social expectations (Bronfenbrenner & Morris, 2006) that impact on preschool children's Dual Language Learning. Indeed, ethnographic studies from cultural psychology such as Super, Harkness, Barry, and Zeitlin (2011) also make similar submissions.

### Bronfenbrenner's Bioecological Systems Theory and Preschool Education

The classic nature-nurture debate in psychology has been discussed

for many years. The importance of nurture or environment and how it fosters our understanding of human development has long been underscored in psychological/educational literature. This notwithstanding, Bronfenbrenner's model of the environment has a different tone because it goes beyond how environmental variations could bring some genetic mutations to alter genetic development (Navarro, Doucet & Tudge, 2020). Bronfenbrenner's (1979) model focuses on the environment more than the immediate tangibles surrounding the developing individual. Rather, for Bronfenbrenner, environment or context comprises a multiplicity of layers. Bronfenbrenner's theory ends here for many scholars, but this is where the theory rather commences (Tudge et al., 2009; Tudge et al., 2016; Tudge et al., 2018). In his subsequent work in 2000, Bronfenbrenner articulated what he terms 'proximal processes'. These proximal processes are the day-to-day reciprocal interactions between a developing child and his/her immediate environment/context. These reciprocal interactions constitute the "engines of development" (Bronfenbrenner & Evans, 2000, p. 118).

Initially, Bronfenbrenner's theory was referred to as 'the ecology of human development' and later modified to be termed as "ecological systems theory" and referred to as 'bioecological theory' (Rosa & Tudge, 2013). While these show distinct phases, they also indicate the gradual evolution of theory, even though these phases share the same underlying ecological concept (Tudge, Rosa, & Payir, 2018). The first phase, developed in 1979, emphasised the differential contexts in which developing individuals are embedded. The second phase of his theory, developed in 1983-1993, broadened this idea with emphasis on the individual and personal characteristics and the role that time plays in development. Earlier in 1988-1986, the person-process-context models of the ecology of human development were developed. It was in the final phase (between 1993 and 2006) that the proximal processes, as well as the process-person-context (PPCT), were defined (Bronfenbrenner & Evans, 2000). This final phase of his theory, the bioecological theory and PPCT model, encompasses the following four components: processes, person, context, and time. The fundamental idea in the bioecological model is the proximal processes. This model places them first in the PPCT. Thus, Bronfenbrenner perceives individual characteristics and contexts as critical to human development but secondary to proximal processes. These proximal processes are complex and reciprocal interactions between the growing child and his environments, including people, objects, and symbols they engage with (cf. Bronfenbrenner & Morris 1998, p. 996). These complex reciprocal interactions must occur regularly and over a longer period to be effective.

Thus, applying this theory as a framework to the study of dual language learners at the preschool level implies that to understand a child, the teacher must not only examine him/her and the immediate environment. More importantly, the varied interactions of things, the home/family background, the social agents, and the native/maternal language that has shaped his/her cognition and perception cannot simply be overlooked. The synergy between home, teacher, school, and strong parent-infant rapport influences the child's later proximal processes. For example, the level of separation anxiety exhibited by a child when he/she attends cressch/nursery, kindergarten is conditioned by the home language and home milieu he /she is used to.

#### **Synergistic Theories of Culture and Child Development: Developmental Niche and Parental Ethnotheories**

Regarding parenting and child development, theories of anthropology present different explanations for cultural differences. (Barry et al., 1959; LeVine et al., 1994; Whiting & Edwards, 1988; Whiting & Whiting, 1975; Whiting & Child, 1953). However, these theories rarely investigate the exact mechanisms by which children learn to become members of their culture. Developmentally speaking, culture becomes relevant only when the growing child experiences it.

Various synergistic models of culture and child development have been formulated to resolve this gap. Theories focusing on the biosocial nature of individual development suggest first acknowledging the

systemic organisation of the environment and how that organisation affects/influences the individual. For example, Wiesner 's (1997, 2002) ecocultural model focuses on the routines of day-to-day life. These routines occur in each specific setting formulated in a larger cultural ecology, constituting the primary influence on psychosocial development. Similarly, Worthman (2003, 2010) presents 'developmental microniche' as representing the real experiences of children to their capacities and personal characteristics.

#### *Developmental Niche*

The Developmental Niche is a theoretical framework that integrates concepts and findings from multiple disciplines that focus on the development of children from the perspective of cultural context (Harkness & Super, 1994; Super & Harkness, 1986, 1999). This theory was originally developed to address both the variability and the tenacity observed in varied studies on child development and family life in Kenya by Harkness and Supper in the 1970's (Harkness & Super, 1985; Super, 1976). Two fundamental principles underscore the correlation between culture and developmental psychology (e.g., Bell, 1968), namely: first, every child's environment is organised in a non-arbitrary manner in a cultural system; and secondly, dispositions including temperament, skills, and attributes have an impact on the child's development.

At the centre of this framework is the individual child in each cultural context surrounded by characteristics inherited from the culture (Super & Harkness, 1994). Three major subsystems surrounding the child described in this theory are 1) the physical and social settings of the child's day-to-day life, 2) caring practices and customs, and 3) the psychology of the caretakers. The physical and social settings in which the child lives offer the scaffold in which the child's life is constructed. This consists of where, with whom, and in what activities the child engages in. Customs and practices that are culturally regulated become meaningful because they are repeated over time and embedded in the child's life. First, the three subsystems influence the child's developmental experience in the larger culture. Themes that become repeated in varied experiences of the child creates 'messages' (Mead, 1972) contributing to the child's emerging model in addition to 'thematic elaboration' (Super & Harkness, 2002)

Second, the developmental niche is theorised to be an 'open system' (van Bertalanffy, 1968). It is not isolated and self-contained. Activities from outside its boundaries, therefore, influence it. Nevertheless, the subsystems are also assumed to be slow in accommodating new elements from outside. For example, a mother may typically enroll her child in a preschool despite her initial ambivalent beliefs about the effect this enrolment will have on her child's emotional development. This belief and other mother' behaviours may take a while before they become integrated. This is especially the case of a less educated mother enrolling her child in a daycare with children from predominantly urban and highly educated parents.

Third, the child at the centre of this framework plays a critical role in the theory's construction and change with time. For example, depending on the culture, a child's temperament will likely induce different social reputations in different peer groups. Similarly, a mother may choose a particular custom of rearing practices for a child with a developmental delay. The consequent interactive mother-child relationship may develop along certain paths as the child develops (Keogh et al., 2000).

#### *Parental ethnotheories*

The term 'Parental ethnotheories' was coined by Harkness and Super (1996). Parental ethnotheories are how parents think about their parenting, children, and families and how they are shared with others in each cultural context. Therefore, these ethnotheories are cultural models of parenting and child development held by parents and others who care for children. These are often implicit and highly motivational (D'Andrade & Strauss, 1992). Therefore, there are critical influences on the other two subsystems in the developmental niche. In short, in the context of constraints from the wider context, parents make choices

regarding child-rearing practices, which tend to follow cultural patterns.

### **Implications of the Bioecological System Theory and the Developmental Niche and Parental Ethnotheories for Dual Language Learning**

The two theoretical frameworks described above have common pedagogical implications for dual language learners. First, language learning is a complex dynamic system in each cultural/socioeconomic context. Second, language learning comprises smaller interacting and complex dynamic systems nested within, such as the microsystem (culture), the ecosystem, the macrosystem, and the person immersed at the centre. At the risk of oversimplification, some key elements underscore the ecological/developmental niche approach to dual language learning. First, in any natural ecosystem, all elements are interdependent. A change in one part of the system affects the others. Second, in the ecological metaphor, the nature of change is nonlinear, which has two implications: a) small-scale change could have a large impact. The opposite is equally true: large changes are not likely to affect the system as intended. A third feature of complex dynamic systems has to do with co-adaptation. Agents and elements within the system co-adapt to each other in a situated context. The fourth characteristic is that systems that are complex and dynamic tend to operate at the same time at multiple timescales. Thus, different timescales may be relevant contingent upon context and observer. For example, timescales of milliseconds are noticeable for a dual language learning teacher interested in working memory during L2 learning. For a language teacher focusing on L2 grammar, the prominent timescale may be weeks or more (Swanson & Levine, 2020). The final feature of an ecological complex dynamic system is that it is spatial, operating simultaneously at multiple, nested spatial or social levels, having different timescale contexts. An observer determines which are relevant. Similarly, preschool classrooms have programmes within the institution that are nested in the context of national culture. This national culture is also fluid with tribal/ethnic values and different social classes of children about dual language learning, etc. (cf. Douglas Fir Group, 2016; Ortega, 2019; Reagan & Osborn, 2019).

## **V. OBJECTIVE OF THE STUDY**

This study investigated preschool teachers' simultaneous use of L1 and L2 in pedagogical instruction. Specifically, the study tested whether preschool children taught by teachers using classroom interactions in both L1 and L2 along measures, such as using play-based projects in L1 and L2, encouraging children's higher learning in both languages will outperform those taught using only L2.

## **VI. METHODS**

### **Participants**

There were two hundred and sixty (260) participants. Two hundred (200) children in three (3) administrative districts in Ashanti, Ahafo, and Bono were purposively sampled. The children were in KG1 and KG2 between the ages of 4 and 5. Seventy percent (140) were males, and 40% (60) were females. All were approximately average children in terms of L1 and L2 vocabulary size. None were found to have a learning disability such that they were unable to communicate in Akan and English. The children's socioeconomic status was about 90% working class, with 10% from middle-class, educated families. All of them spoke Akan (L1) in their homes, while the 10% from the middle upper-educated class spoke L1 and L2 (English).

Additionally, sixty (60) kindergarten instructors, thirty (20) from each of the three localities were randomly selected. Of the sixty (60) instructors, 10 had bachelor's degrees in early childhood education, and the remaining 50 did not qualify for Education. They had all been kindergarten instructors for between 2 and 8 years. Thirty (30) of these instructors were sampled as experimental groups. They were enrolled in online and on-site study for eight (8) weekends from February to

March 2024. The study was designed to examine if there was a relationship in language comprehension (L1 and L2) between children taught by teachers using linguistic responsive practices methods and those taught without teacher linguistic responsive practices methods. Language teachers' pedagogical strategies are deliberately designed to support the learning, development, and academic engagement of children from diverse linguistic backgrounds using teacher-responsive practices and methods used in this study.

Additionally, language teaching methods deliberately leverage and utilise teaching and learning tools to make learning more relevant and effective for children from diverse backgrounds. The other thirty (30) control group instructors did not participate in the practice methods of this linguistic response, which were taught online and on-site. They taught using only L2.

### **Data collection instruments**

Experimental group teachers who were enrolled in the eight-week (8) online and on-site study were exposed to the following: a) reading books in Akan (L1) and English (L2) simultaneously to children, highlighting the unique features of the two languages in terms of phonology. For example, in Akan, there are three phonemic tones: High (H), Mid (M), and Low (L). Teachers were also exposed to main characteristics of English phonemes, such as syllables, intonation and stress were also taught so they could understand similarities and dissimilarities in children L1 and L2; b) singing songs and reading poems to expose children to sounds of Akan and English with focus on enriching vocabularies in both L1 (Akan) and L2 (English) were taught; c) Utilising dual language learners L1 language as resources in the learning process was also presented in this 8-week online and on-site teaching. They were also taught how to use bilingual books to present the same narrative in Akan and English, how to design play-based projects emphasising language interactions, such as using explicit vocabulary instruction for dual language learning, supporting children's language learning through repetition and new words modeling; d) encouraging higher level thinking: teachers on the 8-week online and on-site tutorials were also taken through how to promote higher order thinking among KG children through such strategies as i) helping children to make connections between what is happening in the classroom and what is happening in the community in L1 and L2; ii) teachers asking children to explain things in both L2 and L1; iii) introducing new concepts or ideas in both L2 and L1. All the above measures were taught to those who participated in the online and on-site tutorials. After the 8-week online and on-site tutorials and two weeks before the experiment, the two hundred KG children were randomly pre-tested in Letter identification, Word identification, Phenom, and Poetry to test whether there was a significant difference in linguistic performance between and among the children that might be an extraneous variable to influence the results of the experiment.

### **Data analysis**

Descriptive and inferential statistics were used to analyse pre-test and post-test data. The pre-test was to ensure that there was no significant statistical variance between the two groups in terms of general language ability. The posttest measured the difference between the experimental and control groups. The experimental groups were taught by teachers trained in linguistic responsive practices, while the control was instructed by teachers with no training in linguistic responsive practices/strategies mentioned above. The first three pre-tests used descriptive statistics, ANOVA, and Homogeneity of variance. The remaining tests measured the post-intervention performance between the experimental and the control groups along different linguistically responsive practices. Some responsive practices measured included: a) ability to identify phonological features in L and L2; b) vocabulary enrichment through songs and poems in L1 and L2; c) supporting children's language learning through repetition and new word modeling in L1 and L2, etc. The Tables are presented below under the Results.

### **Ethical Consideration**

KG teachers who consented to participate in the study were given a recruitment package with a short questionnaire. Parents who permitted their children to participate also signed the parental consent form. No one participated in the study under coercion. Parents and participants were informed that the study was purely for academic purposes. They were assured of a high level of confidentiality.

	Students	N	Mean	SD	Std. Error Mean
General language Ability Scores	Experimental Group	100	80.10	5.75335	.57533
	Control Group	100	56.24	8.30373	.83037

VII. RESULTS

Table 1: Descriptive Statistics: Pre-Test on KG’s children knowledge of general language ability: Letter identification, Word identification, Phenom, and Poetry recitation before experimental intervention

	District 1	District 2	District 3
Letter Identification	5.586(1.597)	5.566(1.581)	5.565(1.571)
Word Identification	5.578(1.509)	5.218(1.600)	5.781(1.495)
Phenom	4.478(1.817)	5.487(1.482)	5.376(1.495)
Poetry Recitation	5.236(1.666)	5.240(1.481)	5.236(1.051)
Average Mean (SD)	5.2195(1.647)	5.378(1.536)	5.490(1.403)

The means and standard deviations scores on the pre-test of children’s general language ability in letter identification, Word identification, phenome, and poetry recital in the three administrative regions are indicated above in Table 1. We needed to test whether there was a statistical difference between the means of the scores. This one-way analysis (ANOVA) was conducted because we needed to know whether the groups’ variances were equal, as shown in Table 2.

Table 9: Mean and Std. Deviations of the Experimental and the Control Groups

ANOVA

Table 2: KG’s Children’s knowledge of general language ability

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.102	2	.051	.467	.641
Within Groups	.987	9	.110		
Total	1.090	11			

The ANOVA test in Table 2 above,  $F(2, 9) = 0.467$ ;  $p > 0.05$ , shows no significant differences between the variances of the three groups.

Table 3: Homogeneity of Variance of KG’s children’s knowledge of general language ability

Levene Statistic	df1	df2	Sig.
2.312	2	9	.155

The three statistical tests conducted above on general language knowledge did not show any significant differences in the variances of children in the three districts in letter identification, word identification, phenom, and poetry recital at this pre-testing phase. We also checked other extraneous variables of the children, such as socioeconomic background, parental education level, and school location. No significant differences were identified, as indicated in Tables 1, 2, and 3 above.

Table 4: Ability to identify phonological features of L1 and L2 and L2

Group of Children	N	Mean	Standard deviation
Experimental group	100	33.13	0.807
Control group	100	22.01	0.668

Table 5: Vocabulary enrichment through songs and poems in L1 and L2

Group of Children	N	Mean	Standard deviation
Experimental group	100	96.00	0.002
Control group	100	55.00	0.013

Table 6: Supporting children’s language learning through repetition and new word modeling in L1 and L2

Group of Children	N	Mean	Standard deviation
Experimental Group	100	94.09	.378
Control Group	100	49.24	.873

Table 7: Utilising dual language learners L1 language as resources in the learning

Group of Children	N	Mean	Standard deviation
Experimental Group	100	89.09	.368
Control Group	100	59.24	.872

Table 8: Encouraging higher-level thinking through L1 and L2

Group of Children	N	Mean	Standard deviation
Experimental Group	100	87.09	.369
Control Group	100	56.21	.869

Table 10: Independent sample t-test of KG’s children’s knowledge of the five experimental measures

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI	
					Lower	Upper
23.62	198	.000	23.860	1.01021	21.869	25.852
23.62	176.249	.000	23.860	1.01021	21.869	25.852

In the five measures in Tables 4-8, simultaneous use of L1 and L2 of the experimental groups taught by teachers exposed to linguistically responsive pedagogical practices was statistically higher than the control group taught without L1 and L2 but ONLY with L2. The mean and standard deviation of the combined scores of the five measures between the two groups, as presented in Table 9, shows there was a significant difference in the scores for the experimental group ( $M = 80.10$ ,  $SD = 5.753$ ) as against the control group ( $M = 56.24$ ,  $SD = 8.304$ ). Additionally, the independent sample t-test  $t(198) = 23.62$ ,  $p < 0.001$ , is shown in Table 10. These results suggest that KG’s children who were taught by teachers simultaneously utilizing dual learners L1 with L2 as resources in learning to identify phonological features of L1 and L2, enriching vocabulary through songs and poems in L1 and L2, supporting the learning of new words in L1 and L2, etc., outperformed the control group.

VIII. DISCUSSION

The findings suggest that preschool education that supports children’s L1 language, such as reading poems to children in both L1 and L2 to expose them to dual sounds, fosters the enrichment of vocabularies in L1 and L2, benefitting DLL’s home language. This aligns with what has been confirmed in the literature, for example, Barnett, Yarosz, Thoms, Jung, & Blanco, 2007; Buysse et al., 2014; Farver, Lonigan, & Eppe, 2009). A firm grasp of L1 becomes the basis for acquiring L2 (Dixon et al., 2012). Consequently, when teachers at the early stages of education for dual language learners become responsive in terms of native/maternal language and culture in supporting DLLs in their classrooms, it fosters children’s comprehension of L2. As shown in the results, when teachers use strategies to bridge connections between Akan and English, such as reading to them using bilingual books in both Akan and English, as indeed it was in the case of the experiment group teaching, the data showed that in each of the five constructs, the experimental group outperformed the control, corroborating Gay (2000); Naqvi, McKeough, Thorne, and Pfitscheri (2013). Engaging children in sustained conversation in L1 and L2, asking questions that are open-ended in both L1 and L2 and using shared story books in L1 and L2 with purposeful reading not only supported children’s comprehension but also fostered high-order thinking, especially their ability to make inferences as indicated in Table 9 above. This supports the evidence that when teachers provide additional linguistic support for children’s L1, it facilitates the learning of L2, and what is reported here, especially in Table 9, confirms Goldernberg et al. (2013). Similar studies in another dual learning language, such as Castro, Ayankoya, and Kasprzak (2011) Facella, Rampino, and Shea (2005), in which children are encouraged to use L1 (Spanish) in the classroom facilitated connections to English. Besides adding weight to

what is being reported here, such empirical studies also empirically confirm this study's theoretical background, namely, the bioecological system theory and the synergistic theories of culture.

These two theories share a common denominator: children's biosocial nature and development. Hence, pedagogy needs to acknowledge a) children's systemic organisation of the environment they come from and b) how the organisations affect the individual.

Thus, both theory (e.g., Bruner, 1975, 1981; Chapman, 2000) and recent research (e.g., Zimmerman et al., 2009) are suggestive that children's language development is dependent on the quality and the quantum of communicative acts that they are exposed to in the classroom. Hence, there is a relationship between teachers' classroom linguistic affordances and the language productivity of children (Justice, Mashburn, Pence, & Wiggins, 2008; Logan, Piasta, Justice, Schatschneider, & Petrill, 2011; Mashburn et al., 2008). The findings reported here in this study support this relationship.

#### IX. IMPLICATIONS FOR EXISTING LANGUAGE POLICY

Ghana's Language policy mandates that L1 of the Child be used as instructional language from KG to Primary 3, and English becomes L1 after that. English (L2) is taught in the lower primary grades, and then from Primary 4 through to Primary 9, Ghanaian language (L1) becomes a subject of study. The policy, as it is currently, is pedagogically correct. Nevertheless, preschool teachers' linguistically responsive practices may need to be fostered purposively during the training of teacher trainees in the Colleges/Faculties of Education. For example, training institutions and stakeholders, to the extent possible, need to ensure preschool teachers speak the native/maternal (L1) languages of children and become language models. Parents and family members are to be encouraged by teachers to continue to support children's continued development of their L1 in the homes. Teacher trainees need to be trained to accept instances of communication from children, especially when they mix L1 and L2 as a communication strength, and not see it as 'problem'. Such an attitude of acceptance psychologically fosters the child's self-efficacy to develop secure nurturing relationships, regardless of his/her native/maternal (L1) experience with English as L2.

#### X. CONCLUSION

Empirical studies' findings support the evidence that language abilities remain foundational for cognitive, behavioural, and social-emotional outcomes. All too often, dismissed by some teachers and parents as an obstruction to acquiring an L2, the psychological significance of L1 in learning generally and transitioning to L2 cannot be underestimated. Proficient knowledge of L1 provides a solid linguistic framework that facilitates a smoother transfer of these skills to L2 acquisition. Therefore, providing enabling pedagogical experiences at the preschool level to reduce the bridging of dual language learners L1 to connect with target L2 language is crucial. Teachers' linguistically responsive practices at the early stages of preschool education in which both L1 and L2 are simultaneously taught, and to the extent possible, where teachers and volunteers speak the native (L1) of the children, is critical. Teachers' need to encourage authority figures to support children's continued development of L1 in the homes to facilitate the connection to L2. Thus, in early education, especially at the kindergarten level, every child needs support to develop secure and nurturing relationships regardless of their prior experience with English (L2). Language education at this early age that envisions preschool education as monolithic/monolingual in which monolingual/bilingual children must learn the target language, using only the target language is psychologically/pedagogically incorrect. Rather, bilingual teaching and learning grounded in a more divergent epistemology, rather than separating languages, fosters more participatory opportunities for all children to connect easily from L1 to L2.

#### XI. CONFLICTS OF INTEREST

There are no conflicts of interest.

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