

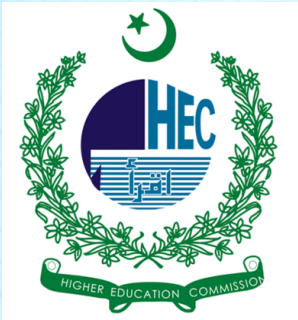
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**EFFECTS OF SECOND LANGUAGE ACQUISITION ON THE  
DEVELOPMENT OF EARLY LEARNERS: ACADEMIC,  
COGNITIVE, AND LINGUISTIC PROCESSES**



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**Abstract**

This study investigates the relationship between second language acquisition and cognitive development among Pakistani preschool and primary school children aged 2–8 years. Drawing on theories of bilingualism and cognitive development, the research examines whether learning English as a second language contributes to improvements in verbal, perceptual, and quantitative skills. A quantitative research design was employed using a questionnaire administered to parents and teachers of children enrolled in preschools and primary schools across Pakistan. The study utilized the McCarthy Scales of Children's Abilities (MSCA) as its theoretical framework and assessment basis. Data from 150 respondents were analyzed using correlation and regression techniques. Reliability analysis indicated acceptable internal consistency (Cronbach's Alpha = .763). The regression model revealed that child quantitative skills significantly predicted linguistic development ( $\beta = .255$ ,  $p = .003$ ), whereas verbal and perceptual skills did not show significant effects. The model explained 6.2% of the variance in linguistic development, suggesting the influence of additional factors not included in the framework. Findings support the view that bilingualism and second language learning can positively contribute to cognitive development, particularly in quantitative reasoning, while also enhancing children's adaptability, analytical thinking, and language awareness over time. The study highlights the importance of supporting bilingual education and maintaining home languages alongside English learning in early childhood. Limitations include the restricted geographical coverage, relatively small sample size, and cross-sectional design. Future research should employ longitudinal approaches to better understand the long-term cognitive effects of bilingualism in children.

**Keywords:** bilingualism, second language acquisition, cognitive development, early learners, linguistic development, McCarthy Scales of Children's Abilities, Pakistan, English language learners.

## **INTRODUCTION**

All children are born ready to learn language to communicate with the significant people in their lives (Lodhi & Ahmad, 2025). Within the first few years of life, virtually all typically developing children master the basics of one language. Although this is a complex task that requires much effort, it is expected and considered normal (Ahmad et al., 2021). Increasingly, young children are in learning environments where more than one language is used. Internationally, it is estimated that there are as many children who grow up learning two languages as one (Andleeb et al., 2025).

The number of children enrolled in preschool and Head Start programs whose home language is not English (English-language learners, ELL) has been steadily increasing over the past two decades (Akram et al., 2021). There is a growing and convincing body of research that high quality early childhood education can improve the educational achievement of children from diverse linguistic and cultural backgrounds and help to reduce this achievement gap before kindergarten (Ehtsham et al., 2023). Therefore, it is important for the early childhood profession to have a clear understanding of how children acquire a second language in order to design high quality learning environments for children who are in the process of acquiring English as their second language (Fatima & Ahmad, 2025).

A child growing up in a bilingual environment in which the two domains of language usage and the two sets of interlocutor's overlap continually faced with interference between his two languages (Carlson S. M. & Meltzoff A. N; 2008). If there are different strategies of language learning (Bloom 1970), one might expect bilinguals to adopt characteristic strategies due to the difficulties they encounter. Although traditionally the effect of bilingualism has been evaluated in terms of scores on standardized intelligence tests, a more recent approach has been to investigate its effects on more specific manifestations of cognitive development (Bialystok E. & Feng X.; 1970). One of the earliest contributors to this approach has been Leopold (1939-1949). His detailed account of the development of his bilingual child, brought up from the very beginning in a one-person, one-language home environment, contained numerous entries on what he considered to be favorable effects of bilingualism on the child's mental development. One of the most remarkable effects of bilingualism, Leopold (1961) wrote, was "a noticeable looseness of the link between the phonetic word and its meaning."

The possible implications of these observations have intrigued many a student of bilingualism. Anisfeld (1964) and Peal and Lambert (1962) used them to support their views regarding the favorable effects of bilingualism on the development of cognitive processes. Furthermore, few studies to date have been sufficiently rigorous in providing an adequate definition of the childhood bilingualism under investigation. Bilingualism is defined as dual acquisition of language in a one-person, one-language home environment. The language learning process requires any child to venture inferences, some of which are incorrect because of overgeneralization or idiosyncratic interpretation (Bialystok; 2009).

### **Rationale of the Study**

Bilingualism has been associated with a greater awareness of and sensitivity to linguistic structure, an awareness that is transferred and generalized to certain early literacy and nonverbal skills (Bialystok, 2009). Children who have the opportunity to speak two languages should be

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encouraged to maintain both, so they can enjoy the benefits that may accompany bilingual status. Children from homes where English is not the native language should be encouraged to cultivate their home language as well as English. Maintaining the home language is essential not just to the child's future academic and cognitive development, but also to the child's ability to establish a strong cultural identity, to develop and sustain strong ties with their immediate and extended families, and to thrive in a global, multilingual world.

It is commonly assumed that preschool-aged children can just "pick up" a second language without much effort or systematic teaching. However, becoming proficient in a language is a complex and demanding process that takes many years. As with any type of learning, children will vary enormously in the rate at which they learn a first and a second language. The speed of language acquisition is due to factors both within the child and in the child's learning environment. The child's personality, aptitude for languages, interest and motivation interact with the quantity and quality of language inputs and opportunities for use to influence the rate and eventual fluency levels. This study will look into the above mentioned areas of the bilingual learning context within the Pakistani preschool going kids aging between 2 to 8 years old.

## **Problem Identification**

It is commonly observed the early school going children do face the difficulty in the language development of children who learn a second language after three years of age, or successively. The difficulty is due to confusion of by their mother tongue with that of English language taught at schools.

## **Problem Statement**

Early learners who learn second language early have higher cognitive abilities than monolinguals.

## **Significance of the Study**

Many researchers like Saunders, W.M. & Goldenberg, C. (2009) argue that response is a crucial aspect in learning as well as writing process. Through feedback, teachers and parents come to distinguish for themselves whether the children are performing well or not. When they are not performing well, however, further feedback helps them to take corrective action about their writing in order to improve it and reach an acceptable level of performance.

This research will give directions to the academicians as well schools and parents to look and supervise their children for second language development. And make respective changes or modifications where they are required as indicated by McCarthy (1977).

## **Scope of the study**

Most research concludes that there are no negative effects of second language development on the linguistic, cognitive or social development of children, and there may even be some general advantages in these areas of development. Instantaneously, bilingualism follows a path similar to monolingual development; in sequence to second language achievement in a predictable series of stages. As early childhood programs become increasingly diverse, teachers will need to understand the process of second language acquisition and how to adapt their expectations and instruction

### **Research Question**

From the current studies following research questions arises:

1. Do early learners who learn early second language have higher cognitive abilities than monolinguals?

### **Literature Review**

The contributions of Leopold (1965) in bilingualism with cognitive development, many researchers came up with the idea to test those observations and designed experiments accordingly. Children with monolingual and bilingual environments were the subject to those experiments. The main objective was to identify whether monolinguals interpret the words and their meanings more appropriately or the bilingual ones. Martin-Rhee, M.M., & Bialystok, E. (2008) proposed a technique for questioning to test the bilinguals' earlier understanding of subjective characteristic of name-object relationship. Experiments were made to identify whether interchanging words change the meanings of those words in bilingual children's mind or not. The test results supported the earlier observations by Leopold (1965).

Many researchers like Grosjean, (1982) and Saunders (1988) are of the view that learning second language can only be beneficial academically as well as cognitively when first language is completely developed. This is because a child can understand better the language structure if he has clear understanding of the words in first language. In simple words, the model is to describe the child's social and emotional readiness to learn second language for his academic as well as cognitive development.

A child if learns second language before the age of 3 years, the developmental procedure is almost as similar as to acquisition of first language (Ramadani & Sallauka, 2024). There is some contradiction in literature over acquisition of second language might be slower at pace when it comes to vocabulary and language structure development as compared to the children learning only one language (Kumar et al., 2024). There are fair chances that the children who are acquiring second language and transforming into bilinguals, one language may lead, and this is natural. There are only rare cases where bilingual children can be able to equally balance the development of two languages (Asllani & Ramadani, 2025).

At the age of three years, usually the child becomes able to understand the first language or home language. He is able to understand structure of the home language and can now learn the words, features of the new language that is where the process of second language learning starts. This process researchers call sequential learning process, that is, one after other. Sequential learning is the four-staged process described by Skutnabb-Kangas, and Toukomaa (1976)

1. *Home language Use:* After attaining competency in home language, entering to English Dominant pre-school environment might confuse him. He will continue to speak in home language to make others understand what he is trying to communicate.

### **HI: The second language is development is positively related to child verbal skills.**

2. *Nonverbal Period:* The child starts observing other children who are already in Second Language environment, tries to communicate nonverbally. At this stage, the child learns the second language actively, focusing on the new features, phonetics and words structure of the new language.

3. *Telegraphic and Formulaic Speech*: At this stage the child is ready to adopt and say the newly learnt words that he observed saying from others which is as similar as monolingual child tries to adopt the language using unanalysed words and phrases.

4. *Productive language*: In the start the child tries to create simple grammar patterns. With the passage of time, the structure of language and vocabulary will get into child's control. One can expect mistakes and errors at this learning stage of child as this is the stage of experimenting with new words, new language features, and vocabulary, grammar and language rules.

***H2: The second language development is positively related to child perceptual skills.*** Language mixing and language switching is an important thing to consider while a child is acquiring English as second language (P. F. Ramadani, 2021). Early learners need to understand when and how to switch languages portions of a sentence so that sentence does not lose its meaning. This is one important aspect of Second Language learning. This aspect does not mean that child may get confused and get incapable of separating the language. This happens when child does not hold enough vocabulary to complete his sentence in one language; he takes words from first language to complete his communication (F. Ramadani, 2021b). Having not enough vocabulary is normal thing for early learners and there may be many reasons for this, like limited memory capacity. Even proficient bilingual adults face such problems according to the research. The main idea is that it should be considered normal by parents and teachers and should not be strict or rigid about which language is to be spoken at given situations. The aim should be to enhance communication in which ever language the child feels comfortable and able to express. Researchers have found that bilinguals might have poor vocabulary because of certain reasons. While experimenting, it has been found that often bilinguals face the problems of word or phrase production. That leads to meaningless communication and child is unable to express completely. There might also be the factor of using slang words in the language (Ramadani, 2022). Bilinguals often appear to be more obvious in their perceptions about certain words, sentences and phrases. It depends on the child's readiness to learn or acquire the second language (F. Ramadani, 2021a). Comparing with monolinguals, Leopold's experimental study reveals that the analytical and verbal skills of bilinguals appear to be sharper than monolinguals. Their analytical power sharpens when certain situation is given to them because they analyse in both languages. So, Leopold's study can be summarized in this way: there are two strategies that define bilinguals' patterns of thinking with respect to verbal material, one is attribute structure and the other is readiness to reorganize. In challenging environment, bilinguals look for original dimensions of the language patterns (Ramadani & Arifi, 2016).

***H3: The second language development is positively related to child quantitative skills***

#### **Research Method:**

The current study to be executed will be quantitative in nature. This research method is widely used by researchers where numerical and statistical analysis of the data collected through surveys, questionnaires, or polls is involved. The objective of using Quantitative Research Method in our current study is to find correlation between our independent and dependent variables that are mentioned later in study.

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## Participants:

As this study is to identify whether children of age between two to eight years develop their cognitive abilities with time while learning English as second language or not, it is decided to circulate the questionnaire among the parents and teachers. The objective behind spreading questionnaire is that parents or teachers observe many learning traits of children and so they can better explain if the children's cognitive abilities are developing or not.

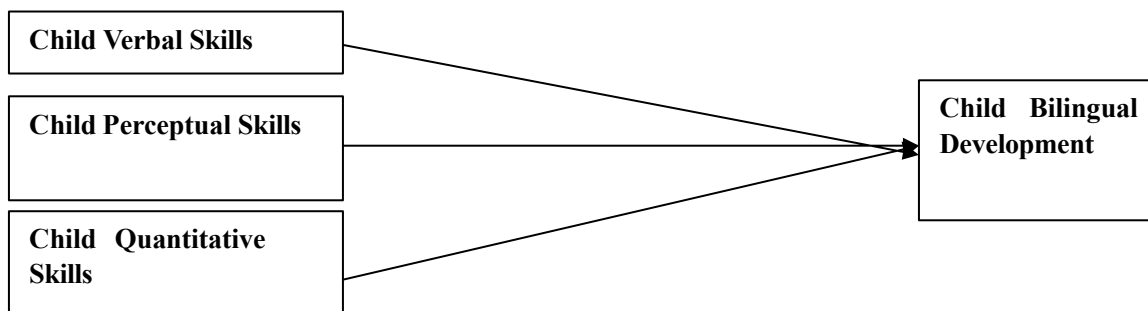
## Sampling Procedure:

The sample of this research study will be children of age between two year to eight years, as this study will be mapping to McCarthy Scales of Children's Abilities, and the focus of this study is the cognitive abilities of early learners. For this purpose, questionnaire will be distributed to the teachers of different pre-schools as well as primary level of Islamabad/Rawalpindi vicinity. Also remote data collections were done Via GOODLE Forms to get the information outside Islamabad region. Questionnaires were filled from teachers and parents currently enrolled in the schools and daycare spread all over the country. These questionnaires were filled from the prospective of those students who are learning English as a secondary language.

## Demographic Information:

The targeted sample is early learner, so the ages of the children are one year to eight years. The study is not gender based therefore both male and female children will be included in the sample. The targeted sample selected for this study will be the students of pre-schools and schools of Pakistan majority from Islamabad/Rawalpindi.

The research was more of an exploratory one, studying an issue in detail, conducting research, and then recommending relative areas where improvements are required.



(Adapted theoretical Framework McCarthy 1977)

## Sampling technique

To collect the data for this study researcher had used convenient sampling technique for data collection and the respondents. Keeping in view the objectives of the study, non-experimental approach was used to collect the primary data in this study. With the help non-experiment, one can look into the causal factors which impact a certain phenomenon. Questionnaire adapted from secondary data and other studies carried out on similar topics have been put a part of this study as a data collection tool.

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**Instruments:**

This study will follow McCarthy Scales of Children’s Abilities (MSCA) to identify cognitive abilities of early learners who learn English as second language. The scale is a measurement tool for the assessment of pre-school and school children of age between two to eight years.

**Reliability:**

**Reliability Statistics**

Cronbach's Alpha	
	N of Items
.763	24

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. Change
1	.285 <sup>a</sup>	.081	.062	3.332	.081	4.297	3	146	.006

a. Predictors: (Constant), Mean of Child Quantitative Skills, Mean of Child Verbal Skills, Mean of Child Perceptual Skills

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
	B	Std. Error				Beta	Zero-order	Partial
1 (Constant)	8.029	1.425		5.634	.000			

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Mean of Child Verbal Skills	-.179	.125	-.120	-1.426	.156	-.043	-.117	-.113
Mean of Child Perceptual Skills	.148	.154	.084	.964	.337	.123	.080	.076
Mean of Child Quantitative Skills	.301	.099	.255	3.049	.003	.257	.245	.242

a. Dependent Variable: Mean Child Linguistics development

## ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	143.101	3	47.700	4.297	.006 <sup>a</sup>
Residual	1620.899	146	11.102		
Total	1764.000	149			

a. Predictors: (Constant), Mean of Child Quantitative Skills, Mean of Child Verbal Skills, Mean of Child Perceptual Skills

b. Dependent Variable: Mean Child Linguistics development

Adjusted R square is 0.62 which shows that this model explains only 6.2 percent variance in the dependent variable. Only one variable is reported significant which is child quantitative skills. Its p value is 003 and beta value is .255 which shows that with 100 percent increase in the child quantitative skills his linguistic development will increase by 25.5 percent. Adjusted R square is very low that is indicating there are some other factors which are affecting dependent variable which are not discussed in the proposed theoretical framework.

## Correlations

	Mean Child Linguistics development	Mean of Child Verbal Skills	Mean of Child Perceptual Skills	Mean of Child Quantative Skills
Pearson Correlation	1.000	-.043	.123	.257
	Mean of Child Verbal	1.000	.323	.197

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	Skills				
	Mean of Child	.123	.323	1.000	.305
	Perceptual Skills				
	Mean of Child	.257	.197	.305	1.000
	Quantitative Skills				
Sig. (1-tailed)	Mean Child Linguistics development		.301	.068	.001
	Mean of Child Verbal Skills	.301	.	.000	.008
	Mean of Child Perceptual Skills	.068	.000	.	.000
	Mean of Child Quantitative Skills	.001	.008	.000	.
N	Mean Child Linguistics development	150	150	150	150
	Mean of Child Verbal Skills	150	150	150	150
	Mean of Child Perceptual Skills	150	150	150	150
	Mean of Child Quantitative Skills	150	150	150	150

The results of correlation shows that correlation between all the independent variables is less than 0.5 so there is no problem of multi-colinearity in the study. McCarthy provides information on the internal consistency and stability of test scores, as they were obtained from the standardization sample. As per MSCA manual, and based on McCarthy's intense clinical and teaching experience, these six scales were determined principally through instinctual and functional deliberations. Standardized analysis of the five age groups well supported the validity of these scales for normal children, though not each factor emerged for all the groups. The results are also evident that children's' profile mapping MSCA scores imitate meaningful and real performance in cognitive development. MSCA can also be utilized in identifying children's strengths and weaknesses in the learning process.

**Conclusion**

Language learning is a slow and steady process and it takes a long time to understand the language structure, language rules and usability in certain circumstances. Early learners feel difficulty to

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maintain the understanding of both languages at same levels. Bilinguals often face problems in interpreting the actual meaning of the words and sentences and that affects their perceptions about scenarios. This causes misleading of the information. Experiments have shown that those early learners of second language who are slow in learning process at early stage, have developed sharp cognition at later stages, their verbal, analytical, perceptual and memory skills sharpen with time. The bilingual child has experienced himself making many mistakes concerning which language is required in a given situation.. As a result of these factors, the bilingual child is more than ordinarily aware that language learning is hypothesis testing and that it require effort. Research increasingly shows that most young children are capable of learning two languages and that bilingualism confers cognitive, cultural, and economic advantages. Cultural and social aspect requires a child to stick to home language in order to communicate within the families and relatives, while schools require the child to be totally in different environment for their learning process.

## **Limitations of the Study**

While conducting the study, certain limitations were observed such as it lacks the longitudinal examination of the model. The study was limited to regions of Pakistan as well as serious numbers of respondents were reposted low. The data collection was done online and as well through paper questionnaire which were both time taking.

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