

## *The Pre-eminence of Early Exposure to Foreign Languages*

### *Case Study: BABE'S Kindergarten Pupils, Oran*

تفوق التعرض المبكر للغات الأجنبية  
دراسة حالة: تلاميذ روضة بابي، وهران

**Takoua SAADI\***

Hassiba Benbouali University

Chlef / Algeria

[T.saadi97@univ-chlef.dz](mailto:T.saadi97@univ-chlef.dz)

**Hamane Souraya**

Mohamed Ben Ahmed University

Oran2 / Algeria

[Hamaneso-2012@hotmail.fr](mailto:Hamaneso-2012@hotmail.fr)

**Received: 23/09/2021**

**Accepted :11/09/2022**

**Published :31/12/2022**

#### **Abstract:**

The field of language science has long sought relevant factors to explain differential foreign language attainment for early and late acquirers. So, if there are age effects on foreign language acquisition, what could they be? How important early exposure is to foreign languages as early as kindergarten? And does this affect the didactical methodologies adopted in the learning and teaching of the target foreign language? To answer the previous inquiries, this research paper provides a participant observation of four to six years old pupils in kindergarten, to understand children's behavior in acquiring a foreign language. The results of the observation will serve as background data to investigate the pre-eminence of early exposure on children's future language proficiency. The findings of this research paper suggested some constructive methodologies and worthwhile procedures for children's better foreign language learning and teaching outcomes.

**Keywords:** Foreign Language Acquisition; Early Exposure; Neuro-linguistics; Methods; Critical Period.

---

\* Corresponding author.

## **المخلص:**

لطالما سعى مجال علم اللغة إلى دراسة العوامل ذات الصلة لشرح التحصيل التفاضلي للغة الأجنبية للمكتسبين المبكرين والمتأخرين. لذا، إذا كان هناك للسبب عوامل مؤثرة على اكتساب اللغة الأجنبية، فماذا يمكن أن تكون؟ ما مدى أهمية التعرض المبكر للغات الأجنبية منذ القسم التحضيري؟ وهل يؤثر ذلك على المنهجيات التعليمية المعتمدة في تعلم وتعليم اللغة الأجنبية المستهدفة؟ للإجابة على الاستفسارات السابقة، توفر هذه الورقة البحثية ملاحظة للمشاركين الذين هم تلاميذ تتراوح أعمارهم بين أربع إلى ست سنوات، من روضة الأطفال بآبي في وهران، الجزائر، لفهم سلوك الأطفال في اكتساب لغة أجنبية. ستكون نتائج الملاحظة بمثابة بيانات أساسية للتحقيق في أهمية التعرض المبكر على الكفاءة اللغوية للأطفال في المستقبل. ساعدت نتائج هذا البحث في اقتراح بعض المنهجيات البناءة والإجراءات الجديرة بالاهتمام لتعلم اللغة الأجنبية ونتائج أفضل لتدريس الأطفال.

**الكلمات المفتاحية:** اكتساب اللغة الأجنبية، التعرض المبكر، اللغويات العصبية، المناهج التعليمية، فترة حرجة.

## **1. Introduction**

Acquiring a foreign language at an early age is not the same as doing it later in life. Many studies have been conducted to investigate this notion, to try and explain how it works, why, when, and what are the outcomes and procedures to be adopted in light of all these inquiries. Foreign language learning became a trend and the main concern of ministries of education who wish to include second and foreign language teaching as part of public curricula as early as kindergarten. Some children wait until they go to school to learn a second language, and others acquire it earlier. It appears that there is a difference between late learners and early acquirers. The learning capabilities of human beings change as they grow up, a fact that affects proficiency in the foreign language.

By trying to understand human beings' language learning capabilities and how this may change as they grow older while going through early versus late learning, some didactic insights regarding foreign language teaching start to appear. So, is exposure to foreign languages as earlier as kindergarten better? and what are the proposed methodologies that are possibly best to ensure high foreign language proficiency for children?

## **2. A Critical Period for Language Acquisition**

Considering the hypothesis that there is "A limited phase in the development of an organism during which a particular activity or competency must be acquired if it is to be incorporated into the behavior of that organism. " (Singleton David 2004). There are indeed many cases that prove the existence of a critical period for language acquisition, some of which results are still valid, though it is only a hypothesis. However, there is no specific underlined end for the CP, if it exists, the critical period varies depending on what language aspect is being learned, Granena and Long called it the "window of opportunity for L2 acquisition."

Abello-contesse Christian states that there could be more than one CP for the same language's components, for example, a critical period for learning L2 phonology by age six, so if the acquisition of this specific component does not occur in the underlined CP assigned for it, this will cause gradual and continuous decline from childhood to adulthood, be it for L1 or any other foreign language. (Abello-Contesse, Age and the Critical Period Hypothesis 2008, 170-172)

## **3. What do Neuro-linguistics say about this**

In addition to the closing of a critical period, Seliger goes on to speculate: "owing to the loss of plasticity and the closing of critical periods for whatever language functions, the learner will not be able to incorporate some aspects of the second language, such a situation would be true regardless of whether the language was being acquired in a natural or formal learning environment " (ZhaoHong 2004, 119), with age and maturation the brain becomes more rigid for such process - decline in neuroplasticity -the ability of the brain to form and reorganize synaptic connections, especially in response to learning or experience or following injury- "To learn languages, the human brain becomes progressively stiff and rigid after the age of nine." This explains why after a certain period, some brain functions decline, and among those is the ability to fully acquire a foreign language.

One of the most astonishing works in this record is the study of Penfield on the so-called 'Ganglionic Record'- a mass of nerve tissue existing outside the central nervous system- he noticed that the electrical stimulation of the brain during an operation causes the patient to re-experience the past, this Ganglionic Record conserves current perceptions in details, for a reason which he explained in the observation of his children and their experience with German, the results were that learning a foreign language at an early age is never a waste because it will gain its fruits in the long term (Singleton David 2004, 222-224).

Children as naturalistic learners achieve a native-like accent in the second language better than adolescent and adult learners (Rod 2019, 32), Krashen explains that adolescent and adult learners after reaching a formal operation stage, lose access to natural acquisition of a foreign language, as a result, they turn to the alternative conscious cognitive processes in understanding and interpreting the target language, they will create new rules to comprehend older ones and learn rule by rule which is very hard. Children still did not reach the perceptual narrowing- The tendency of an individual to narrow the intentional focus and miss certain types of information in the environment as the level of arousal increases- and can have more natural access to the language, obtaining an early lexicon has a very important value for later age skills, which shows how important it is the early exposure to foreign languages, especially vocabulary before grammar.

The French teacher Hieghington in his project developed in the United Kingdom, referred to primary school children as follows: " They have no awkwardness or inhibitions with the new language and are not at all bothered about making mistakes. Most significant of all, they soak up new language and ideas rather as a sponge does water."

All the types of studies related to how the process of foreign language acquisition is done, provide a set of results that require a deep outlook on behalf of educational system makers and also teachers, to adapt teaching and learning procedures, that assure better learning outcomes for early acquirers.

#### **4. Method :**

An observation is used to investigate how effective early foreign language acquisition is, as well as, the best proposed didactical approaches and methods to ensure high foreign language proficiency for children as early as kindergarten. The method was chosen because it is seen as most appropriate to meet the behavioral nature of the research purpose. In Addition, communication with kids or questioning them is hard, so an observation of their behavior is better to study subjects in their 'Natural Setting.'

##### **4.1. Sample :**

The participants selected from the population are a class of kids aged between four to six years old. They are 15 subjects in all. The selection of this sample is based on the findings of the previous data and the research question requirements.

##### **4.2. Data Collection and Results :**

The observation started on 29/09/2019 at 11 am, it took place twice a week, for 55min per session for a whole month. The tables below show detailed reports on the observation field notes taken in the eight sessions, accompanied by the results of each part in a session.

**Table 1: The First Session of the observation 29/09/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
<b>11 am- 11:05 am:</b> The group was having a playing break before the session, the session started at 11 am sharp	- The children are very excited to see someone new.
<b>11:05 am- 11:15 am:</b> I greeted the class and introduced myself using only English. - I sang the " Hello, how are you " song. I repeated the song and asked the class to sing along. We repeated the song three times. I have put a videotape of the song on TV and asked them to follow the video and sing along again.	- The children were laughing. - The children were repeating after me with some pronunciation mistakes, they seem lost while uttering some words. - The kids were following and singing at the same time.

<p><b>11:15 am - 11:30 am:</b> I made the participants stand in front of me, and we practiced some sports movements - stretching- while uttering the name of the movement out loud, for example, "roll your shoulders." I had them repeat after me both the movement and its name.</p> <ul style="list-style-type: none"> <li>- I sang the "Numbers" song, I asked them to sing along and follow my moves, and we repeated the activity three times.</li> </ul>	<ul style="list-style-type: none"> <li>- The participants were following everything I do with no hesitation.</li> <li>- The children were jumping, repeating the words, and having fun.</li> </ul>
<p><b>11:30 am - 11:45 am:</b> I pointed to my fingers and showed them how many fingers we have. I asked them to raise their hands and we counted fingers together, we repeated the activity three times.</p> <ul style="list-style-type: none"> <li>- The next activity was the "Alphabet" song, we repeated it three times. I asked them to sit in an arcade facing me, I showed them how to sleep by closing my eyes and laying down, as well as how to wake up by opening my eyes and sitting back again.</li> </ul>	<ul style="list-style-type: none"> <li>- The subjects were looking at their hands and counting, they scream when arriving at number ten.</li> <li>- Once I started singing, the children sang along, they all knew the song.</li> <li>- We started the game, they were performing the moves, and they were laying down on top of each other and laughing so hard.</li> </ul>
<p><b>11:45 am - 11:55 am:</b> I sang " Goodbye Song " for the second time, I asked them to sing along. I showed them a videotape of the song, and I asked them to sing along again.</p> <ul style="list-style-type: none"> <li>- I said goodbye and kissed each one of them and left the classroom.</li> </ul>	<ul style="list-style-type: none"> <li>- The participants were repeating what I say.</li> <li>- They dance and follow the moves of the videotape while trying to sing along.</li> <li>- The participants were waving at me, and saying goodbye.</li> </ul>

**Table 2: The Second Session 02/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
11 am- 11:55 am: We repeated the same activities as the first session. I added body parts using the song "Head, Shoulders, Knees and toes." We repeated the activity three times I stopped the song and asked them to locate their body parts, for example, where is your head? We repeated the song and the activity several times.	- The kids knew the body parts song, they sang along, When I asked them to locate their body parts, they did not know where are they. By the end of the session, the subjects recalled all body parts.

**Table 3: The Third Session 06/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
11 am- 11:55 am: We repeated the same activities of the second session. The sleep and wake-up game of the first session was replaced by a color activity. Singing and guessing colors of random objects in the classroom and pictures. We repeated the activity three times.	- The participants knew some colors through songs, the subjects repeated names of colors correctly, some kids named the colors in French, and others in Arabic.

**Table 4: The Fourth Session 09/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
-11 am - 11:55 am: We did the same activities as the third session. - I added the " Find the Object" game. I name an object such as a " pen," I hide it somewhere in the classroom, and I ask the kids to look for it while uttering the sentence " where is the pen?"	- The children were attentive during the body parts game, they were looking for the objects. - The participants were not following all the activities, they were turbulent, and I found difficulties making them calm down.

**Table 5: The Fifth Session 13/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
<p>- 11 am- 11:55 am: We did the same Activities as the fourth session. I omitted body parts activity and added naming clothes instead. Instead of doing the activity by myself first, I gave the subjects the name of the activity or started the song of it and they should do it alone. I showed the kids pictures of colors, objects, numbers, gestures, and letters and they should name them without my help.</p>	<ul style="list-style-type: none"> <li>- The participants performed all the activities with no mistakes.</li> <li>- The performance was reduced with the newly made activities.</li> <li>- The subjects recognized the majority of pictures, some children did not remember a couple of concepts, and others named them in French.</li> </ul>

**Table 6: The Sixth Session 16/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
<p>-11am - 11:55am: We repeated the past activities of the fifth session.</p> <ul style="list-style-type: none"> <li>- I added a writing activity, I gave each one of the subjects a piece of paper and a pencil, I wrote the letter A and the number 3 on the whiteboard, and I asked them to write them on their papers.</li> </ul>	<ul style="list-style-type: none"> <li>- The kids did not respond to the repetition of old activities, they were making noise.</li> <li>- The participants did not follow what is on the board, they drew random scratches instead.</li> </ul>

**Table 7: The Seventh Session 20/10/2019**

<i>Observation Field Notes</i>	<i>Observation Results</i>
<p>- 11am - 11:55am:We played random games.</p>	<ul style="list-style-type: none"> <li>- The Participants were having fun, laughing and playing with me, Some subjects were murmuring words in English when they see me.</li> <li>- A girl was singing one of the class songs to her Barbie.</li> </ul>



**Notes :**

- The observation was supposed to last for two months, however, the headmaster of the kindergarten decided to omit English from the program.
- The participants in the research observation were bilingual beginners who had received exposure to L1 more than L2, especially outside the classroom.
- Some participants have parents who speak both Arabic as an L1 and French as an L2 at Home.
- Two months after when the observation took place, the participants received English instruction from a French teacher who knows some basics of the language.
- After the removal of the English class, some parents registered their kids (participants) in private schools to learn English as a foreign language.

**4.3. Discussion of Results and Findings**

The participants who had parents using both Arabic and French at home (notes), were more involved and easily understand what is said, more than others, they were exposed to the L2 very early starting from two years old, explaining the fact that early exposure to languages is not only for reaching high proficiency in the target language but also for activating and enhancing brain cells -neuroplasticity- as well as understanding. Early exposure to more than one language affects the infant's brain maturation and electrical activity, a fact that enhances their auditory and visual performance, which made it much easier for some participants to follow better and understand quickly, this early activation of brain cells has long-term positive effects even for age-related cognitive deficiencies.

The early learning of L2 for some of the observation participants (notes) was at the expense of learning English as an L3, as well as Arabic as an L1 because they were naming objects in French or Arabic instead of English (Table 1 and 5), which confirms Fledge's point " No matter

what language is being continuously refined it will be at the cost and influence on the other language being learned."

Parents should be aware that the learning and development of their children's literacy in L2 are never at the expense of their L1 or any other language (Pilar Mayo Maria 2017, 73-79). Cummins meant suggests the use of L1 only in particular stages, this is what Troncy called " plural approaches to language and culture" (Manterola 2014, 1), as a multilingual didactic method to teach foreign languages, this implies the teaching and learning activities using more than one linguistic variety, more than one language in a single activity, and even more than a variety in the same language.

In school settings, for example, increasing subjects taught in other languages, like studying geography in Arabic L1, writing essays in English L3, and participating in the class in French L2, there are no tangible proofs of this policy's effectiveness but it is worth looking at.

Children are active and full of energy, and that energy needs to be used wisely in learning. When being taught after their playing break, the participants were frustrated, because at this age all they wish to do is to play (Table 1). The fact of using different games in the learning process made the subjects more interested and attentive, regardless of the amount of input they are exposed to (Tables 1,2,3,4,5,6, and 7). They learned different things naturally and effortlessly.

The policy adopted by educational system makers depends on the fact that children are considered to possess limited cognitive development, and that they are implicit learners of both L1 and foreign languages. PilarGarcia talked about research in her book that had put forward a possibility of shifting kids' acquisition of foreign languages to an explicit one, just like adults, fast and more efficient, a fact opens for further research.

The thing about children when they are exposed to any language is they take it as it is without any deductive reasoning or even understanding, this is explained in the songs used in the observation sessions, and the field notes report that they already know them (Table

1)like the body parts song (Table 2), that they probably took from TV or YouTube, however, when asking the child, "where is your head?" he/she did not respond, because they are natural learners who lack understanding of concepts, unless they are well guided to link what they hear with its representation in the environment, and its cognitive interpretation in the brain, that is a process that can be done easily in still-developing neuroplasticity.

Children are kinaesthetic receptive learners, teaching them through audio-visual and visual aids (Table 5), as well as gestures showed better results in the observation process, more effective than simply talking. By using these materials, the participants understood easily and relatively very fast all that was said during class. As Pena. et.al findings state that children benefit a lot from early exposure to face-to-face interaction and auditory input.

When applying written activities in the observation class - writing the letter A or the number 3 - (Table 6), the participants drew and scratched haphazardly on the paper, instead of writing what they were told, so at this age, writing is a skill that may not be effective as listening and speaking.

The participants can repeat activities alone only after four hours of exposure to the same input repetitively (Table 5). However, they can choose to not produce, they are receptive learners, who would surely take what they have been taught but probably will not produce nor use it. Teaching results of the target input shows later. When they are playing alone, the observation noted that some participants are murmuring words or talking to their toys in English (Table 7). The most important thing then, and this is to expose the child to the language, especially vocabulary, without worrying about production or tangible results that much, they store everything and they can retrieve it at any time once that area of the brain is triggered.

After repeating the activities many times, I took a step back and gave the participants the chance to retrieve and use what they learned without any help (Table 5), they repeated everything perfectly, accent

wise, children as naturalistic learners achieve native-like accents in the target language, the only case where they cannot do so may be due to the time spent learning the language, as well as not using it at home.

Some subjects knew the new vocabulary in their L2, so once they see a picture they name it directly (Table 1 and 5), and it was easy to introduce these words in English literacy, this is what PilarGarcia tackled: " Vocabulary expansion should be stressed in primary level course design, she argues that: "Because learning new vocabulary using repetition will accelerate the rate to access the forwarded lexical items and as a result the possibility of enhancing the rate of language acquisition as a whole" (All tables). Also, learning vocabulary early in several foreign languages helps develop parallel knowledge in the L1.

With continuous repetition and choral singing (All tables), the participants' accents got better, as the observation goes on, the children were listening more attentively and caught what they hear correctly, unlike in the first courses. Enever states that: "Repeated, systematic exposure and practice opportunities are required to recognize the novel FL phonology and to counter the influence of the L1..." Hummel and French (2010) also recommended supporting learners with repeated activities for better retention of phonological representations in addition to language awareness strategies, for a better association between pre-existing knowledge of L1 with the FL (Enever and Lindgren 2017, 156-160).

The other thing about children is that they get bored quickly when they are exposed to something new the participants get excited at first, especially if it is integrated within a game, excessive repetition, on the other hand, had no affective results for the participants once they have grasped the concepts (Table 6). The teacher has to make sure to repeat enough but not more than enough, in addition, to constantly adding something new, as was done in the research practice, with each session there is a repetition of old concepts and addition of new ones (All tables). Participants interact with novel inputs very well. Children catch up easily when given enough exposure time and following the right methods.

Better retention of phonological representations raises phonological awareness- "The ability to pick up rhyming words and count the number of syllables in a name, it also involves alliteration, i.e. how sounds repeat themselves, afterward kids will have to come up with rhymes on their own." (Kelli Johson)-of the target language. Most of the nursery songs used in the observation serve as tools to raise participants' phonological awareness. In her study, Pilar Garcia talked about the importance of teaching language learners how to make connections between the sounds in a language and their graphical representation, in addition to the relationship between letters and sounds.

Children at this age are egocentric learners, each pupil should be given the appropriate attention he/she needs for better learning results when asking questions to each one of the participants, and kissing them all after the end of each session (Table 1), they smile and get excited while looking to other peers, this might enhance each students' performance and motivation because individual characteristics are of great importance in classroom interaction (Enever and Lindgren 2017, 242-243), they are considered as the most effective materials in language teaching.

After the month when the research took place, the participants received only two months of exposure to English, afterward, they had a teacher with no experience in the language and she was a francophone (Notes), so as a result their motivation to learn English dropped and they had French accents, due to the unbalance in the exposure to languages, it was suggested that they resume learning English after a while but they were not motivated to do so, in fact, they completely rejected the new teacher, except for special cases of participants whose parents chose to register them for English classes in private schools. One of the subjects was five years old, and after only six months of exposure to English, his level improved remarkably. Exposure to the foreign language should be gradual in many aspects, but without continuity and maintenance, the acquired proficiencies in the target language will weaken or vanish, the

same case for motivation, if the confrontation with the language is dropped, motivation will decrease as a result.

Early exposure to foreign languages is very influential and is the best way towards perfect proficiency, however, with only a few hours of the program, following the same functional syllabus, and weak activities, result in spinning in infinite circles with no way out towards improvement, a truth that is sad giving the fact that the participants had great energy and enthusiasm that could work as an inspiration to adopt perfect programs, methodology, and materials for such complex learning situation as an investment in those soft minds.

### **5. *Recommendations:***

- It is perhaps true that after puberty, there is a continuous decline in some cognitive processes and early localization of brain functions, this decrease in neuroplasticity is gradual and it affects language components one at a time, so it could be that there is more than one critical period possible for L2 acquisition, this window closes first for phonology, and it remains open for semantics.
- Providing children with early exposure to a foreign language, starting from two years old, is conceivably preferable because earlier is better.
- The acquisition of the L1 at the expense of the L2 might also negatively affect proficiency in the foreign language.
- No matter what choices people may make to acquire their second language, be it early or late, it is necessary and duty for educational system makers to provide the best learning experience for all age groups.
- It is better to insert second and foreign language learning in the early stages, starting from kindergarten.
- The exposure to one language more than the other is seen to be unbalanced, so it is feasibly best to divide the time of exposure, as well as the type of activities, equally between the learned languages.
- It is preferable to introduce multilingual activities in FL class, for students to learn comparisons between languages.

- It is better to use more games and interactive activities, to clarify foreign language input.
- The main thing that is crucial to start boosting is vocabulary in second language teaching, the more words they learn, the more the rate of acquisition increases.
- Repetition is important for better storage and mastering of the input but not too much, it is better to replace it with something new once it is fully grasped.
- Raising phonological awareness is useful for language acquirers because it helps in making comparisons and associations between L1 pre-existing knowledge with that of the target L2.
- Taking into consideration individual characteristics is essential, this will raise motivation toward learning the language.
- Exposure to the foreign language should be gradual in many aspects, but without continuity and maintenance, the acquired proficiencies in the target language will weaken or vanish, the same case for motivation, if the confrontation with the language is dropped, motivation will decrease as a result.

## **6. Conclusion:**

Some brain mechanisms might have an expiration period of use, so if they are not used and developed on time, it might be too late to open them again, it is perhaps not impossible but it will be a hard task, this is why it is suggested that to avoid future deficiencies in a certain Foreign Languages' proficiency, is to trigger brain cells in the right time and acquire the language when neuroplasticity and brain development is at its pick; As suggested above, as early as kindergarten. Children have incredible potential if they are put in the right hands, they need a sophisticated language teaching policy, this is why most studies in language science are devoted to them, as an attempt to investigate the best ways to improve children's performance in FLs. Following the results of this research paper, it is recommended to take a closer look at the educational policies adopted for foreign language learning and teaching, since it is essential for several educational systems across the

globe to adapt methods to new insights proposed in language science studies.

## **Reference**

### **a. Books**

- [1] Ellis, Rod. *Understanding Second Language Acquisition*. Oxford University Press, 2019.

### **b. Ebooks**

- [1] Abutalebi, Jubin, and Harald Clahsen. "Critical Periods for Language Acquisition: New Insights with Particular Reference to Bilingualism Research." *Bilingualism: Language and Cognition*, vol. 21, no. 5, 2018.
- [2] Enever, Janet, and Eva Lindgren. *Early Language Learning: Complexity and Mixed Methods*. Multilingual Matters, 2017.
- [3] Han, ZhaoHong. *Fossilization in Adult Second Language Acquisition*. Multilingual Matters, 2004.
- [4] Moyer, Dr. Alene. *Age, Accent, and Experience in Second Language Acquisition*. Multilingual Matters, 2018.
- [5] Muñoz Carmen. *Age and the Rate of Foreign Language Learning*. Multilingual Matters, 2006.
- [6] Odlin, Terence, and Zhaohong Han. *Studies of Fossilization in Second Language Acquisition*. Multilingual Matters, 2006.
- [7] PilarGarcía Mayo María del, and Luisa García Lecumberri María. *Age and the Acquisition of English as a Foreign Language*. Multilingual Matters, 2003.
- [8] PilarGarcía Mayo María del. *Learning Foreign Languages in Primary School: Research Insight*. Multilingual Matters, 2017.
- [9] Rokita-Jaśkow, Joanna, and Melanie Ellis. *Early Instructed Second Language Acquisition: Pathways to Competence*. Multilingual Matters, 2019.
- [10] Singleton, David M. *Language Acquisition: The Age Factor*. 2nd ed. Multilingual Matters, 2004.

### **c. E-journals**

- [1] Abello-Contesse, C. "Age and the Critical Period Hypothesis." *ELT Journal*, vol. 63, no. 2, 2008.
- [2] McGregor, Karla K, et al. "Why Words Are Hard for Adults With Developmental Language Impairments." *Journal of Speech, Language, and Hearing Research*, vol. 56, no. 6, 1 Dec. 2013.
- [3] Rahman, Mohammad Mosiur, et al. "Effect of Age in Second Language Acquisition: A Critical Review from the Perspective of Critical Period Hypothesis and Ultimate Attainment." *International Journal of English Linguistics*, vol. 7, no. 5, 16 July 2017.
- [4] Rosselli, Mónica, et al. "Language Development across the Life Span: A Neuropsychological/Neuroimaging Perspective." *Neuroscience Journal*, vol. 2014, 18 Dec. 2014.



***d. E-articles***

- [1] Ardila, Alfredo. "A Proposed Neurological Interpretation of Language Evolution." *Behavioral Neurology*, vol. 2015, 2015.
- [2] Jackson, Daniel O. "Second Language Acquisition and the Critical Period Hypothesis Ed. by David Birdsong." *Language*, vol. 76, no. 2, Apr. 2000.
- [3] Manterola, Ibon. "Bilingual Education Searching for Promising Didactic Proposals." *Frontiers in Psychology*, vol. 5, May 2014.
- [4] Patten, Elena, et al. "Temporal Synchrony Detection and Associations with Language in Young Children with ASD." *Autism Research and Treatment*, vol. 2014, 24 Dec. 2014.
- [5] Vandormael, Charlotte, et al. "Language in Preterm Born Children: Atypical Development and Effects of Early Interventions on Neuroplasticity." *Neural Plasticity*, vol. 2019, 25 Feb. 2019.
- [6] Vanhove, Jan. "The Critical Period Hypothesis in Second Language Acquisition: A Statistical Critique and a Reanalysis." *PLoS ONE*, vol. 8, no. 7, 25 July 2013