
The Role of Age in Language Learning: Children Versus adults, Revisited**Peyman Rajabi¹, Mania Koohafkan², Mahboob Abedi³**¹Ph.D. in TEFL, ELT department, Malayer Branch, Islamic Azad University, Malayer, Iran^{2&3} PHD student in TEFL, Malayer Branch, Islamic Azad University, Malayer, Iran

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Abstract: It is a common agreement that the best age to learn a new language is while you are young; however, the reason is not that clear. Many believe that the ultimate success in language learning depends on how early a person is exposed to a certain language. With the introduction of the idea of critical period hypothesis in the late 1950s, the idea of a biologically based time for language acquisition tried to explain the supposed success of children and the failure of adults in learning a second language. It is out of question that personal learning capacities vary from learner to learner. Still, research has shown that adult learners simply have greater cognitive and linguistic capabilities than younger learners. As to learning vocabulary and language structures, being an adult learner is more of a benefit than a disadvantage. The present study aims to discuss the role of the age in language learning. This research has been carried out with a library and research methodology and an examination of the ideas and opinions of scientists in this field. In this research, the researcher tried to examine the influence of age and its impact on language learning.

Keyword: age, language learning, adults, motivation, attitude, language

Language and Age: A Short History

The interest in language and age has a collection of research on language and dementia. One of the early studies that inspired this study was the study of Irigaray (1973) entitled "La language des dements" which was the first comprehensive study focused on language characteristics. It was focused mainly on the development of pathologic language in defining the views of language and age, inasmuch as the focus of research has largely been on inability and rational deterioration. The conventional way of conducting studies in the 1980s was to consider the linguistic aspect (word recognition, mental speech, expressive skills), and the presence of experimental groups of young and old participants in discussing these aspects to illustrate how the elderly and the younger group learn a language. However, some of the pioneers of research on the cognitive aspects of age aging, including Baltes (1997), turned to a slightly different approach, in which lifetime development and development were emphasized more than the specifics of some age groups. The main purpose of developmental psychology throughout life is to study growth as a process throughout a person's life. This means that there may be advantages and disadvantages of different ages and that growth is not necessarily directional. What is meant by growth or decay depends largely on a foreign and essentially interpersonal standard.

Baltes and Lindenberger (1977), in their introduction to the research methods in growth psychology, define the research goal from this perspective. They believe that age-related growth psychology is associated with finding models for developing a theory of genetic cognitive developmental changes which is suitable in different age variations. The study of growth over a person's life spans a wide range of topics, including cognitive development, conceptual growth and rational development, social growth, personality development, and developmental psychopathology. Specifically, a significant increase in research has been made on brain functions that are related to cognitive functions, but also to physical and environmental changes. It was found that, all of these functions and subsystems do not grow in parallel; some support growth or decay, while others are moderated by their nature.

Optimal Age and Cognitive Benefits of Bilingualism

Scholars agree that age is a crucial factor in language learning. However, to which extent age is an important factor still remains an open question. A plethora of elements can influence language learning: biological factors, mother tongue, intel-

ligence, learning surroundings, emotions, motivation, and last but not least “the age factor” (Burke & Shafto, 2008). Lenneberg’s (1967) critical period hypothesis suggests that there is a biologically determined period of life when language can be acquired more easily. Beyond this time a language is more difficult to acquire. According to Lenneberg, bilingual language acquisition can only happen during the critical period (age 2 to puberty). The critical period hypothesis is associated with neurophysiological mechanisms suggesting that in late bilinguals the early and the late acquired languages are represented in spatially separated parts of the brain (Broca’s area). In early bilinguals, however, a similar activation in Broca’s area takes place for both languages. This loss of the brain’s plasticity explains why adults may need more time and effort compared to children in second language learning (Ardila, Ostrosky-Solis, Rosselli, & Gomez, 2000).

The Advantages of Early Second Language Acquisition

In early childhood, becoming bilingual is often an unconscious event, as natural as learning to walk or ride a bicycle. But how is this important? According to scientific surveys, language aspects such as pronunciation and intonation can be acquired easier during childhood, due to neuromuscular mechanisms which are only active until the age of 12. Another possible explanation of children’s accent-free pronunciation is their increased capability for imitation. This capability fades away significantly after puberty. Other factors that we should take into consideration are children’s flexibility, spontaneity and tolerance to new experiences (Mechelli, Crinion, Noppeney, O’Doherty, Ashburner, & Frackowiak, 2004). Kids are more willing to communicate with people than adults, they are curious and they are not afraid of making mistakes. They handle difficulties (such as missing vocabulary) very easily by using creative methods to communicate, such as non-verbal means of communication and use of onomatopoeic words. Also the idea of a foreign civilization is not formed in their minds yet. Only at the age of 8 does it become clear to them that there are ethnic and cultural differences. Last but not least, aspects such as time, greater learning and memory capacity are in any case advantages in early language learning. On the other hand there are surveys which point out the risk of semi-lingualism and advice parents to organize language planning carefully (Bialystok, Craik, Klein, & Viswanathan, 2004).

The Advantages of Late Second Language Acquisition

First of all it is important to clarify that by late second language learning we mean learning a language after puberty. Linguists, psychologists and pedagogues have been struggling for years to answer the following question: is it possible to reach native-like proficiency when learning a language after puberty? In order to give an answer we have to consider the following factors: First of all, adults (meaning people after puberty) have an important advantage: cognitive maturity and their experience of the general language system. Through their knowledge of their mother tongues, as well as other foreign languages, not only can they achieve more advantageous learning conditions than children, but they can also more easily acquire grammatical rules and syntactic phenomena. According to Klein and Dimroth (2003), language learning is an accumulative process that allows us to build on already existing knowledge. Children cannot acquire complex morphological and grammatical phenomena so easily. It would be useful to point out that sometimes incorrect pronunciation is not a matter of capability but of good will. According to different surveys, adults do not feel like themselves when they speak a foreign language and they consider pronunciation an ethno-linguistic identity-marker. A positive or negative attitude towards a foreign language should not be underestimated. Another factor to consider is the adults’ motivation to learn a foreign language. When an adult learns a foreign language there is always a reason behind it: education, social prestige, profession or social integration. The latter is considered a very strong one, especially in the case of immigrants (Klein, & Dimroth, 2003).

What distinguishes Bialystok and his colleagues from others is that this research does not deal much with the effects of perceptual and biological changes associated with aging in linguistic development, but rather on the impact of the use of multiple languages on the growth of mental perception over a lifetime. In his previous study, Bialystok concluded that bilingualism would strengthen the control processes in children. This advantage is explained by the assumption that bilingual children have more self-control as compared to their monolingual counterparts. This controlling mechanism brings about cognitive and linguistic advantages to multilingual children in their functional control and enforcement processes of monolingual ones. Bialystok et al. (2004) have investigated whether such an advantage can continue to maturity and aging, in which case bilingual adults will be protected against age-related deprivation from their functions. In addition, bilingual people responded in conditions which suggest that bilingualism is only limited to inhibitory control, and can reduce the negative effects of age on functional control functions in general. To determine more precisely which control functions are affected by bilingualism, a second series of experiments was done (Bialystok et al. 2006). Here, the participants should stand against the stimulus to see what suddenly appeared to the left or the right of the focal point of their eyes, and instead opt for their opposite. In the first experiment, eye movements were evaluated, no trace of age aging or bilingualism was observed. The unexpected differences between these findings suggest that the bilingual advantage reveals itself later in the processing of the mind.

Other groups of researchers have recently studied the potential effects of bilingualism and executive control. Colzato, Bajo, van den Wildenberg, Paolieri, Nieuwenhuis, La Heij, and Hommel, (2008) have investigated single-language bilingual and adult bilingual youth groups in three functional tasks (signal stops, stopping returns, and attention-of-interest) that

have been implicated in various aspects of inhibitory control, and reported that bilinguals in the active deterrence debate did not differentiate from monolinguals, but they had better ability to choose targeted information. Costa, Hernandez and Sebastian-Galles (2008) studied young and single-bilingual bilingual groups in the function of the care network, which are likely to be related to a set of care and attention processes: controlling change, direction and implementation of processes.

After testing on bilingualism, Bialystok conducted a study on elderly people with intellectual disability and concluded that some lifestyle factors such as physical activity, higher levels of education, and occupation and mind-activity recreation can help to increase CR's formation. The bilingualism that has been identified in early studies that reinforces executive functional control in children and adolescents can be an example of complex mental activity associated with CR, thus protecting adults against problems caused by intellectual decline. Studies by Bialystok et al. (2007) included a group of 288 patients with perceptual mental problems, of which 184 had intellectual disabilities, and 91 of them were monolingual and 93 were bilingual. The examination of the mental health status (MMSE) based on the level of bilingual qualifications was significantly lower than that of the monolingual group. Bilingual people have shown signs of mental decline 4 years later than monolingual ones.

In the studies reported above, participants used at least two languages, fluent in the second language and have been bilingual from their early childhood, or at least from the early age of bilingual puberty. Another question is whether learning more than one language will lead to more benefits. In a study by Bialystok, Craik and Friedman (2007) on intellectual decline no distinction between bilingualism and multilingualism has been reported. Recently, this distinction was considered in a large epidemiological study by Kavé, Eyal, Shorek, and Cohen-Mansfield (2008). It was found that "multilingualism predicts perceptual rationales beyond the effects of all other demographic variables," for example, age, gender, place of birth, age at immigration, and education level. However, their study lacked sufficient data about the level of mastery, the frequency of language use and the age of language acquisition. Another disruptive factor is that this is not the use of multiple languages that protect us against dementia, but this inherent flexibility is inherent in the use of brain structures, which can be the cause of multilingualism and the absence of rational deterioration.

Bialystok (2006) has defined the rational cognitive advantage as enhancement of progression of functional control functions, in particular the self-deterrent process and that bilingualism has been outside their linguistic dimension. These functions are normally located in the areas of the anterior cerebrovascular cortex, which made Bialystok to infer that in the case of bilingualism, control over functional functions grows and develops early in childhood and decreases in the late stages of puberty. Because the anterior cerebral cortex is a brain region whose puberty lasts until childhood, it is the first part of the brain that declines as age rises. However, Green and Abutalebi (2008) studied whether the acquisition and learning of further languages can lead to functional and structural changes in the brain. Using Voxel-based morphometry, they reported that early analysis suggest that there is a region in the cerebral cortex close to the bone which has a meaningful effect on the languages use. However, in a study by Mechelli Crinion, Noppeney, O'Doherty, Ashburner, and Frackowiak (2004) it was found that an increase in the density of the cerebral gray cortex by language learning, along with a decline in the age at which learning begins, does not indicate the density of the cortex. This discussion is another explanation of the resilience of the brain-centered experience: synaptic correction after early childhood, characterized by an increase in synaptic correction: synapses that are not used any more are destroyed.

Findings of Yong Hian Lim (2014) indicated that those who spoke two or more languages had significantly better cognitive abilities when compared to what would be expected from their baseline. The strongest effects were seen in general intelligence and reading. The effects were present in those who acquired their second language early as well as late. According to Shook and Marian (2012), being bilingual can have tangible practical benefits. To them, the improvements in cognitive and sensory processing driven by bilingual experience may help a bilingual person to better process information in the environment, leading to a clearer signal for learning. This kind of improved attention to detail may help explain why bilingual adults learn a third language better than monolingual adults learn a second language. Marian and Spivey (2003) believed that the bilingual language-learning advantage may have its roots in the ability to focus on information about the new language while reducing interference from the languages they already know and this capability would help bilingual people to access newly learned words, leading to larger gains in vocabulary than those experienced by monolingual people who aren't as skilled at inhibiting competing information.

Finally, Green and Abutalebi (2008) investigated an individual case (Emile Karbes, who spoke more than 60 languages) to maintain that there are individual differences in the brain structure that affect the process of language acquisition. . These evidences do not in any way negate theories that the use of multiple languages causes structural and functional changes in the brain, since changes in all systems interact with each other. The interpretation of these studies can be done in many ways. First, the possibility that some individuals may be more susceptible than others in terms of some of their brain-specific properties may not be a new finding, but could only highlight new challenges in teaching English. Secondly, considering all the evidence regarding the cognitive benefits of perceived bilingualism, and especially its confirmation in the issue of protection against rational deterioration, bilingualism can only point to the importance of learning languages (multilingualism), as well as the importance of puberty.

Language, Age and Identity

When studying language and age, one can distinguish between a linguistic psychological perspective which focuses on linguistic processing as a mental program and a social linguistic perspective that focuses on the interaction between individuals and their environment. Here, our emphasis is on the first case rather than the second one. This difference in the study of language does not represent the difference in the rate of application, but in the context of social linguistics. In the field of social linguistics, there are two main lines of research: one of them focuses on language among the elderly, while the other focuses on how the identity of the elderly is expressed in there (Preece, Siân, 2016).

So, three aspects of elderly talk can be considered. The first aspect deals with the characteristics of the language used by the elderly. The second aspect focuses on the extent to which the implementation of communication with older people which makes communication more effective, while the third aspect deals with the limitations of the adaptations and speech matching for interacting people (Preece, Siân, 2016). The study of the language used by seniors as compared to that of children and foreigners has revealed that the language of seniors has characteristics such as speaking speed, exaggerated sentences, abbreviations of sentences, and the use of a very common vocabulary. But all of these adjustments do not seem to enhance the quality of interactions or the personal image of the elderly. Kemper and Harden in their study concluded that the semantic complexity and the reduction of the use of sub-sentences which make the elderly's work easier and improve their performance in referential communication function, and reduce sentence length, and the speed of speech, and the step-by-step expression of the sentences. The use of short sentences, low speech rates and a high degree of speech in older adults, according to reports, causes communication problems (Snell, 1997).

Neural Imaging of the Brain in Elderly

In the last few decades, a wide range of neuroimaging techniques have been developed to study the processing of information in the brain. There are three types of methods in common: methods for locating brain activity during specific activities (fMRI, PET) which calculate the timing of activities in specific parts of the brain (ERP) and methods which deal with short-term and area-specific injuries (TMS). The particular advantage of TMS is to study the role of different brain structures in information processing. While there are some studies on the use of these methods for studying language skills in the elderly population, Kramer, Erickson, and Colcombe (2006) warn studying about cognitive processes using these techniques by saying that " Electrophysiological methods, however, only focus on the vagueness of brain activity resources that support some of the actions .

Teaching Language to Adults

Three ways in which teachers can make modifications in their programs to encourage the older adult language learner include eliminating affective barriers, making the material relevant and motivating, and encouraging the use of adult learning strategies (Schleppegrel, 1987). Affective factors such as motivation and self-confidence are the key elements in any language learning. However, older learners fear failure more than their younger counterparts, maybe because they accept the stereotype of the older person as a poor language learner or because of previous unsuccessful attempts to learn a foreign language. When such learners are faced with a stressful, fast-paced learning situation, fear of failure only increases. The older person may also exhibit greater hesitancy in learning. Thus, teachers must be able to reduce anxiety and build self-confidence in the learner. Class activities which include large amounts of oral repetition, extensive pronunciation correction, or an expectation of error-free speech will also inhibit the older learner's active participation. On the other hand, providing opportunities for learners to work together, focusing on understanding rather than producing language, and reducing the focus on error correction can build learners' self-confidence and promote language learning. Teachers should emphasize the positive--focus on the good progress learners is making and provide opportunities for them to be successful. This success can then be reinforced with more of the same (Wertsch, 1985).

Older adults studying a foreign language are usually learning it for a specific purpose: to be more effective professionally, to be able to survive in an anticipated foreign situation, or for other instrumental reasons. They are not willing to tolerate boring or irrelevant content, or lessons that stress the learning of grammar rules out of context. Adult learners need materials designed to present structures and vocabulary that will be of immediate use to them, in a context which reflects the situations and functions they will encounter when using the new language. Materials and activities that do not incorporate real life experiences will succeed with few older learners (Kavé, Eyal, Shorek, & Cohen-Mansfield, 2008). Older adults have already developed learning strategies that have served them well in other contexts. They can use these strategies to their advantage in language learning, too. Teachers should be flexible enough to allow different approaches to the learning task inside the classroom. For example, some teachers ask students not to write during the first language lessons. This can be very frustrating to those who know that they learn best through a visual channel. Older adults with little formal education may also need to be introduced to strategies for organizing information. Many strategies used by learners have been identified; these can be incorporated into language training programs to provide a full range of possibilities for the adult learner (Oxford-Carpenter, 1985).

Final Remarks

The familiar rule that children immersed in a language “soak it up like a sponge”, while adults apparently do not, is not in itself proof of the existence of a critical period for language learning. But it is both easier and more important for children to quickly become good in a second language they hear spoken around them. There are many reasons for this. Children can spend more time and effort on learning than adults who have many competing demands; the motivation for children to fit in is much higher, and the habits of pronunciation and grammar of their first language are less deeply ingrained and thus easier to overcome. And, of course, all learning gets harder with age. None of these factors have anything to do with a specific critical period for learning languages, but all of them do make younger learners of a new language eventually outperform older ones (Schmid, 2016). Various studies (Kramer, Erickson, & Colcombe, 2006; Mechelli, Crinion, Noppeney, O’Doherty, Ashburner, & Frackowiak, 2004) have confirmed that we need to change the way we look at aging and language learning. It is not always the case that the increasing of age is a medical factor and related to some discrepancies. We need to study the field of aging based on the course of life in which language is seen as a phenomenon started at the birth and stays up to the end of life. The life events are mainly the results of some physical effects of age on conceptual performance and interaction with the social settings. Having a theory of dynamic systems seems to be necessary to realize the role of various factors affecting the language development. The most important factors are: individual differences in the study of development, the conceptual capacity, and bilingualism as a potential and specific issue related to migration and aging. Recent studies in neural imaging have shown significant impacts on the process of conceptualization among adults and how language learning is changing the configuration of the brain. Such techniques have paved the way for better understanding the role of specific structures in brain which are responsible for language learning and the timing of language acquisition among both children and adults. Teaching older adults can be a pleasurable experience. Their self-directedness, life experiences, independence as learners, and motivation to learn provide them with advantages in language learning. A program that meets the needs of the adult learner will lead to rapid language acquisition by this group (Schleppegrell, 1987).

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