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## The Younger Learner Advantage: Separating Fact from Fiction

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### Abstract

A number of researchers have postulated whether or not age is a strong determinant in second language (L2) achievement. This paper examines the existing body of research to examine the importance of age in L2 acquisition, with special focus on the Critical Period Hypothesis and studies that have confirmed or refuted the belief that there exists a ‘critical period’ in which learners can more easily master a new language. The paper specifically looks at these issues from the context of English as a Foreign Language (EFL) education in Japan. Based on the results of the existing research, the authors speculate that at present the literature does not offer conclusive evidence to concretely support or disprove a younger learner advantage. Instead, the authors recommend that larger scale, long-term research is required. They also offer some practical advice on how to improve English education in Japan based on the findings.

**Key words:** CPH, critical period, EFL, Japan, young learner

### I. Introduction

The agreed best age at which to begin the study of a second language is difficult to identify, but the common assumption lies in an old axiom: ‘the younger the better’. Tomb (1925) noted, at the time of writing, that it was possible to hear children of ages 3 or 4 in Bengal, India, speaking 4 different languages. A number of

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commonly held assumptions exist that suggest why younger people might be superior language learners, but the majority of these serve to simply confirm that language learning is difficult for adults. Time is a constraint; given that many adults must balance family life, careers, and handle finances among other things.

The perceptions regarding cognition and one's ability to attain proficiency in a second language at a young age are not exclusive to Western countries either, as suggested by recent initiatives from the Japanese government aiming to begin English lessons in elementary schools (MEXT, 2008). English is studied extensively in Japan as a foreign language in public schools, as well as in specialized language schools for both children and adults (Kubota, 2011). Contexts are both formal (public school classes) and informal (language schools, cafes and private tutoring). A more recent report makes it clear that the upcoming Olympics should be positioned as an opportunity to increase motivation for English learning in children, and as result, even more measures are to be taken (MEXT, 2014).

However, when given a more thorough review, it is revealed to be a somewhat more complicated issue than at first glance. This is not to dismiss 'the younger, the better' concept as having no merit; rather that a more balanced view is necessary to make any confident assertions. To begin with, definitions relevant to the argument will be presented, followed by an analysis of one of the prevalent theories that support an early advantage. Arguments that promote an adult advantage will follow, before exploring these ideas through the pedagogical lens of the English teacher in Japan.

## **II. Problems of definition**

### **1. In Consideration of Age**

It would be prudent to first address the problems in establishing what constitutes an "adult" and "child" in terms of age boundaries, as these distinctions carry some ambiguity. We could, for example, add subdivisions (younger and older children), or add extra categories (such as 'over 60') to allow for a more distinct comparison. This kind of variation is evident through analysis of the relevant literature, since there are a number of data points chosen among scholars.

Asher and Garcia (1969) put children into three different groups; 1-6, 7-12, and 13-19. Meanwhile, Tahta, Wood and Loewenthal (1981) used the age range of 5-15 in their study. A more recent study assessed the specific ages of 6, 10 and 14 years (Wang & Kuhl, 2003). Despite the vagueness in defining groups to study, we see commonality in the form of using puberty as a marker to differentiate children from other age categories. While not easily measureable, for simplicity's sake, it does allow researchers to create three broad categories in the form of 'young learners',

‘adolescents,’ and ‘adults’. Despite cases of overlap, defining individuals at both the onset and end of puberty, these categories do allow for data to be compared meaningfully.

## **2. Defining Success and Context**

The second problem faced in terms of definitions is to how to clarify the meaning of ‘advantage’ and ‘success’ in a second language (L2) learning environment. A diverse range of categories can be used in consideration: initial rate of learning, ultimate achievement, pronunciation, grammatical judgments, accuracy, fluency, and functional competence (Saville-Troike, 2006, p.82). Of these, the most frequently studied are the ‘initial rate’ or ‘study rate,’ and ‘ultimate achievement.’ Care should be taken when evaluating these two categories, since depending on the structure of the research, one group may succeed in one parameter in a study, but fail it in another.

Context, of course, is also a factor of extreme importance. A foreign language (FL) context has students studying their L2 from within their own country. Lacking in non-immersive surroundings, L2 lessons are likely to be less frequent and involve less contact with the natives of the target language. Indeed, in such a FL situation, Cenoz (2003) notes that FL learners will never achieve native-like proficiency, making ultimate achievement comparisons between adults and children impossible (p.78). This means attempting to make a comparison, for example, of a child having moved to an L2 country, to an adult learning the same L2 in an FL context as an invalid study.

Essentially, one must take into consideration the learning context as well as the definition of success during investigation. Within the boundaries of the current study, this translates to considering which factors affect the rate of ultimate achievement in ‘young’, ‘adolescent’ and ‘older learners.’

## **III. The Critical Period Hypothesis**

### **1. Critical Period Hypothesis: Origins**

The Critical Period Hypothesis (CPH) suggests that at different stages of development during first language (L1) acquisition, a child has the ability to acquire language innately (Penfield and Roberts, 1959). Without being provided language at certain ‘critical’ stages, complete L1 acquisition will not occur. Evidence is found in unfortunate and extreme cases from highly neglected children, as well as ‘feral’ children that managed to emerge from early childhood without human contact and thus did not experience language input of any kind (Lightbown & Spada, 2013, p.22-23).

As with L1 acquisition, it is also speculated that the same critical periods exist for L2 language development. Put more simply, there are arguments put forth suggesting a critical period during child development where the potential for increased second language competency increases. One of the first scholars to argue this was Lenneberg (1969), who reasoned that this was the reason L2 speakers retained non-native pronunciation. He further argued that this suggests why teenagers have a higher penchant for language acquisition as younger rather than older teenagers (p.636).

## **2. Immigrant Studies and the CPH**

Stronger support for the existence of the CPH comes in the form of immigrant studies. A study by Asher and Garcia (1969) gave early support to the argument that pre-pubescent children held an advantage for L2 learning. Their study consisted of 71 Cuban immigrants aged 1 to 19 upon U.S. entry, and their pronunciation was compared to native speakers. It was discovered that children arriving under the age of 6 had the highest probability of achieving near-native pronunciation, while children over the age of 13 possessed the lowest chance. It was speculated that there was a biological effect of some kind occurring, or two distinct learning types taking place (p.341).

Another proponent of the CPH, Oyama (1976), managed to validate developmental periods of time for achievement in one's L2. Looking at the phonological systems of 60 Italian immigrants within America, she found that those older than 12 could be deemed to have shown traits of a foreign accent. This is despite having the age of arrival and the length of stay in the country separated in the results. However, while some of the immigrants under the age of 12 kept their L1 accent, others were able to develop a native L2 accent. Their length of stay was determined to have no effect on accent. Oyama reasoned that the results show evidence of a 'sensitive' period, whereby from approximately 18 months until puberty, a child has the ability to master at least one L2, by which point complete acquisition is either unlikely or impossible.

## **3. Patkowski's Study**

There are a number of similar studies that focus on evaluating pronunciation. Realizing this, Patkowski (1980) assessed immigrants using transcripts from 5-minute interviews, to dismiss pronunciation as a proficiency indicator. A strong link between the age of arrival to the United States and ability was proven in the study. When compared to native-level performance, the pre-puberty group had results that showed significantly higher phonological accuracy during output than the post-puberty group, which was defined as those who arrived after the age of 15. Aside

from pronunciation, accomplishment in an L2 was shown to be possible, and rather than the arrival age, it was in fact the length of study that affected success the most.

#### **4. Physiological Origins**

A number of long-term studies vindicate the notion that the age one arrives in a new country is the central factor that affects L2 success, in both an immersion setting or the L2 country of origin. Furthermore, plausibility is given to the idea that multiple critical periods, rather than a single critical period, exist. However, attempting to explain the physiological mechanism of critical periods is a difficult task. The changes responsible are not exactly clear, as they involve complicated neurological processes, which only occur very gradually. To put it into simple terms, the brain is not generally considered to develop fully until puberty; at which point other physiological changes result in a loss of plasticity, and with it, lowering the capacity at which a new language can be learned (Savillie-Troike, 2006, p.82).

As the brain develops, the notion of brain lateralization (the theory that both sides of the brain serve different, though complimentary functions) suggests that the left side controls language. During critical periods, the brain is thought to be more receptive to language as it develops (Singleton, 2004). Surprisingly, in cases where parts of the brain sustain damage during the developmental phase, the speech mechanisms can migrate to undamaged areas, yet Penfield and Roberts (1959) noted the same transfer does not seem to occur in adults. Contrary to this, in lateralization studies, Krashen (1973) reported that adults and children with matching types of brain damage scored similarly. Resultantly, Krashen notes that lateralization is completed much earlier than the onset of puberty; from the age of 6. For this reason, it cannot be considered a barrier to accent procurement in adults (p.63).

### **IV. The Case Against the CPH**

#### **1. The Adult Advantage**

As stated earlier, the definition of ‘advantage’ was of significance. Many studies related to a critical learning period showed evidence of a strong correlation between proficiency and the age of arrival in a foreign, L2 country. Despite this, adult and older learners do seem to possess an advantage with regards to memory strategies, metalinguistic knowledge, and problem solving skills (Lightbown and Spada, 2013, p.93). What this results in is greater performance during the ‘initial rate of learning,’ instead of ‘ultimate achievement.’ Consequently, a number of research articles exist which undermine the ideology of ‘the earlier the better’ by analyzing situations whereby adult L2 learners become exceptionally proficient.

## 2. Supporting studies

In Snow and Hoefnagel-Höhle's (1978) notable study, 51 immigrants from the Netherlands were analyzed. Participants were divided in terms of the age of arrival into the country – very young children (3-5), young children (6-7), older children (8-10), adolescents (12-15) and adults (16 plus). Learners were evaluated based on several criteria, including grammar, pronunciation, auditory, vocabulary, morphology, and storytelling. Initially, the youngest children attained the lowest scores, contrasting with the adolescent and adult groups, which performed the best. After a year, the younger learners increased their scores, but the adolescent group was still unsurpassable. Snow and Hoefnagel-Höhle (1978) argued that this was contradictory to the CPH since the hypothesis purports that puberty indicates the ending of the critical period. Their results thus failed to support the CPH and suggested that a critical period between ages of 2 and 13 cannot exist.

Birdsong (1992) studied twenty adults (within a median range age of 35-40), who were highly proficient L2 French speakers, and compared their language abilities to L1 French speakers. While all participants began their French studies post-puberty, they arrived in France between the ages of 19 and 48. A grammar-based test was used for assessment, and Birdsong found that 75% of the L2 learners were deemed to be native-like. It was noted that if a critical period existed, then it would have to have ended well past puberty in consideration of exceptional learners (p.742).

Finally, Ioup, Boustagui, El Tigi, and Moselle (1994) conducted a case study which examined a British adult who had arrived in Egypt at the age of 21. They compared the linguistics abilities of the Briton after 26 years in the country to those of native Arabic speakers. After extensive evaluation, the researchers determined her ability was virtually indistinguishable from native speakers. These studies, among others, challenge the notion that a native-like accent is not acquirable after puberty. While inconclusive, when time constraints are considered, adult learners appear to have an advantage in making progress in their language learning, and it is not impossible for these learners to acquire a native accent.

## 3. Wider implications

Other researchers have criticized the wider assertions rooted in the CPH. One such researcher, Singleton (2004) questioned whether inhibiting factors that resulted from aging could account for the decline in language ability, rather than the CPH. In a similar vein, Hakuta, Bialystok and Wiley (2003) wondered if the critical period inhibited learning in the manner in which was proposed by the theory. In other words, did the CPH still constrain learning after the period had finished? The researchers studied U.S. census data and concluded there was indeed evidence to sup-

port the idea of a decline in English ability compared to age of exposure among 2.3 million Spanish and Chinese immigrants. The pattern of decline however, did not produce any discontinuity; the “hallmark” of the critical period. They could not find a point at which there was any interruption in the regression of proficiency, which would have denoted the end of the critical period.

#### **4. The Foreign Language Context**

Much research related to the CPH has focused on research conducted in a natural L2 context (such as immigrant or immersion learning contexts). As previously discussed, it is difficult to draw comparisons between these contexts and those in which the L2 is taught as a foreign language due to the marked differences. A recent study by Huang (2016) however, found that while a wealth of research examining CPH immersion and FL instruction exists, the ‘younger vs. older’ debate has yet to be studied in the FL context (p.3). She analyzed over 42 studies related to CPH research in FL education contexts over the course of 50 years. She then categorized the studies into single-point and multiple-point, and short-term, long-term and multiple-term lengths. The majority of single-point studies supported an advantage among older learners. On the contrary, multiple-point analyses demonstrated younger learners to have mixed results or no advantage when the ‘catching up’ trend was also considered. Ultimately Huang found no definitive advantage in favor of younger learners in the case of FL teaching contexts (2016). Though inconclusive, such extensive analyses offer some strength to the argument in favor of an older learner FL advantage.

### **IV. Application in Japan**

#### **1. English Competency in Japan**

English ability in Japan is lower than other East Asian nations, despite greater spending on English education. Japan was lagging behind its neighbors from the perspective of both TOEFL (ETS, 2014) and TOEIC (ETS, 2013) scores. While these standardized tests are often criticized for not assessing communicative language ability, they are the benchmark for which most universities and companies alike evaluate English proficiency.

Unsurprisingly then, the guidelines for English education, released every ten years by Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT), have often been at the receiving end of stinging criticism. Common critiques of these guidelines are the focus on exam-oriented instructions, the reliance on grammar-translation, and a lack of professional development opportunities for teachers (Kikuchi & Brown, 2009, p.174). The government has formally instructed

secondary schools to provide students with 3-4 English lessons per week, including one which is to be instructed by a native English teacher, and more recently, 'English activities' have become a part of the curriculum in the final two years of primary education. Despite this, local boards of education (BOEs) and individual schools have been granted some manner of autonomy in implementing these policies. While many educators view these policies as indicative of change in the right direction, there is some hesitation rooted in FL studies conducted in Japan assessing the efficacy of starting L2 education from a younger age.

### **3. Assessing a Younger Advantage**

Some conflict has emerged between researchers examining the context of English instruction among young learners in Japan. Yamada, Takatsuka, Kotabe, and Kurusu (1980) conducted a study in which 30 elementary school students (ages 7, 9 and 11) in Japan were tested to determine their ability to remember English words. The children's ability to remember these words more easily was speculated to be due to stronger rote memory skills.

On the other hand, the results of other research conducted in the Japanese context have contradicted the ideas espoused by the CPH. In a study of 350 young Japanese learners, Ojima, Matsuba-Kurita, Nakamura, Hoshino, and Hagiwara (2011) measured hours of language exposure, age of first exposure and L2 phonological data in corroboration with event-related brain potential (ERP) analysis, using advanced neuroimaging technology. In the test, the learners were exposed to a picture and listened to a spoken word. The learners then identified whether or not the two items matched. The researchers found a correlation between hours of exposure and proficiency, the same correlation was not found between proficiency and age of exposure. Ojima et al. then argued that the results of the previously mentioned study conducted by Yamada et al. (1980) were due to short-term memory functions, and could not be duplicated in a long-term study (2011).

### **4. The Impact of Starting Early**

A study conducted in Osaka by Uematsu (2010) has implications on the 'younger advantage' and how it should affect curriculum design. In the study, 145 high school students were examined, half of whom had experience learning English in elementary and the other half who had not. The students English proficiency was measured using a JACE test that evaluated their grammar, vocabulary, listening and reading. The students were also given an oral interview and a questionnaire to assess their motivation and attitude. The group with English learning experience performed better on the JACE test than the other group.

Of note though, the study found that students who started learning at a younger



age had a less favorable attitude towards English learning (2010, p.58). One possible explanation for this is that the test-oriented, grammar-focused style of lessons taught in secondary school had put off students who had previously taken part in “English experience” lessons. A multitude of studies (Cave, 2010; Lai, 2013; Yashima, 2002) have given evidence to support the notion that the English classroom in Japan is largely driven by the necessity for students to succeed on university entrance exams which results in grammar-focused lessons that drain student motivation.

## **5. Impact on Older Age Groups**

Looking at older learners, there has also been a reasonable amount of research done on how an early start in L2 learning affects students prior to university. It is fair to assume that a positive experience with English at a young age can impact students’ choices in university, and thus affect their future work and travel. Larsen-Hall (2008) studied the advantage of starting language studies early among a group of Japanese university students. The students were divided into two groups: ‘young starters,’ those who had begun studying English between the ages of three and twelve, and ‘old starters,’ those who had started studying English from or after the age of twelve. While the results pointed to a slight advantage for the ‘young starters,’ the telling variable was total input time, rather than simply the age at which students start learning. Starting early, did however, give the students greater opportunity for input. Larsen-Hall (2008) subsequently argued in favor of this educational policy.

## **V. Conclusion**

### **1. Overview**

As demonstrated in this paper, as of yet there is no definitive conclusion as to whether the ‘younger advantage’ exists, and whether or not it is rooted in one (or some) critical period(s). One barrier in the way of arriving at such a concrete conclusion is the variety in terms of context across the existing research. A plethora of other factors, including intelligence, motivation, learning styles, and the necessity for the use of one’s L2 must also play a factor in learner achievement. Undertaking a single research project that considers all these moving parts would be a difficult, if not impossible task.

We can however draw some general conclusions based on the existing body of research. While younger learners appear to have an overall achievement advantage, older learners may benefit from a faster rate of learning when examining immersion settings. While a conclusive decision has not been arrived at in terms of exactly what age the CPH begins and ends, those who move overseas at a younger age ap-

pear to have a greater chance of acquiring native-like proficiency in their L2. This is not to say that older learners cannot achieve a high proficiency in their L2 but it appears to be rare in comparison to their younger counterparts.

In the context of Japan, where English is taught as a foreign language, the extensive analysis conducted by Huang (2016), along with Ojima et al.'s (2015) study leveraging neuroimaging, seems to suggest an advantage for older learners. Conversely, Larsen-Hall's (2008) research arrived at the opposite conclusion. What this may tell us is that greater research is needed, especially given the relatively short time in which elementary school English classes have been ongoing in Japan.

## 2. Recommendations

Given the study by Uematsu (2010) that suggested lower motivation among students who started at a younger age, one might think it is wiser to have students start when older. However, this may be a symptom of how English is taught, rather than the efficacy of the practice of teaching students at a younger age itself. In order to address this issue, Japan's education will have to gravitate away from exam-focused teaching, to teaching that balances practicality with enjoyment for the students and relevance. Working under a system in which the final destination is a written test which does little to measure students' competency in actually using a language gives teachers very little space to teach more engaging English lessons.

MEXT and BOEs across Japan have taken measures to improve English proficiency in the country, such as setting standards for English proficiency in order to graduate, improving teacher-training, and starting instruction from a younger age (MEXT, 2014). Given that starting at an earlier age allows for increased English input and overall exposure, which in turn correlates with a greater proficiency, these steps are likely to be welcomed by language educators in the country. Tokyo's hosting of the Olympics in 2020 may also prove to be a springboard for improving English education in Japan. This may provide the incentives necessary to warrant further study into the younger learner advantage in the context of English as a foreign language classes in Japan and its further reaching effects in a longer term study.

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