

The Effect of Age on the Ultimate Attainment of English Lexis and Morphosyntax

Jeberedar Ali Rizg-Allah & Salaheldin Adam Ahmed Eldouma

Faculty of Sciences and Arts, Albaha University, Kingdom of Saudi Arabia

E-mail: Abufaris2013@yahoo.com

Received: April 14, 2017 Accepted: April 17, 2017 Published: April 30, 2017

doi:10.5296/ijl.v9i2.11164 URL: <https://doi.org/10.5296/ijl.v9i2.11164>

Abstract

This study investigates the relationship between the age of onset of learning English and the ultimate attainment in that language. To this end, it tests the lexical and morphosyntactic competence of 62 intermediate school students who have different points of onset. They have to do a grammaticality judgment test and a vocabulary test. Using the methods of descriptive statistics, the result showed that late starters have outperformed early starters in all aspects of the language examined. The study also revealed that there is a relatively weak correlation between the age of headstart and the ultimate attainment in both levels of language tested. The correlations between the age of exposure and vocabulary attainment is ($r = 0.2$), whereas it is ($r = 0.18$) between the age of exposure and morphosyntactic knowledge. It is also found that there's a strong positive correlation between ESs and LSs grammar and vocabulary ($r = 0.75$). This suggests that vocabulary and grammar are interdependent fields in that the abstract morphosyntactic rules would remain null and void without the lexical component at work, and the intrinsic meaning of a vocabulary item can't be fully grasped without adequate knowledge of the morphosyntactic rules that assign meaning to each word in a sentence.

Keywords: Onset, Age-learning relationship, Early/late starters, Critical period (CP), Lateralization

1. Introduction

Age and language have a long history of interconnection. For centuries a perennial debate has been going on in which language is frequently referred to as a defining criteria of maturation (Singleton and Lengyel, 1995). Informally, it is very much heard, in everyday conversations and speech, that a boy or a girl talks very well to his/her age, or that parents continually complain about their son or daughter who's nearly three, but hardly put two words together.

Serious scientific investigation began to be shaping up in the scene only by the second half of the 21st century. In 1959, two Canadian brain surgeons, Penfield and Roberts, claimed to have found evidence suggesting that before the age 9, children are able to relearn language when injury or disease damages speech area in their brains, however, this capacity declines abruptly soon afterward. A decade later, Lenneberg (1967) as investigating cases of aphasic patients and feral children, discovered that early in life the human brain is characterized by a rapid growth of nerve connection that is coupled with an equivalent development of language capacity. According to Lenneberg (1967), children maintain this capacity up until the onset of their puberty, around the age of 12, but beyond this period, this capacity wanes and learning a language, then, requires some 'laboured' efforts.

However, a bird's-eye view of the relevant literature reveals three major views representing the trajectory of age-learning relationship. A brain plasticity view, a biological predisposition view and an imprinting view (Asher, 1967). The brain plasticity theory, on the one hand, postulates that a child's brain has a cellular receptivity to language acquisition which is controlled by a *sort* of a biological clock. With age, this biological clock changes the cellular plasticity; thus rendering the brain unequivocally inert or mechanically inefficient to acquire an additional language in a native-like fashion. Biological predisposition, on the other hand, enables children in all nations, by definition, to decide what *is* and *is not* possible in the grammar system of their mother tongue (Chomsky, 2006). Imprinting views language learning from a social vintage point. This theory claims that human children learn their language early in life very much in the way young animals do to establish their instinctive behaviour towards other animals of their species.

2. Statement of the Problem

Despite the early introduction of EFL programs in Saudi state schools and private schools for almost 10 years now, students' general performance in this language has clearly been lagging behind, and their proficiency has been lower than expected. (Al Mahana, 2010: 69) refers to this phenomenon stating that

"Although English syllabus in the Kingdom of Saudi Arabia is communicatively oriented, and although students in Saudi state schools receive seven years of formal English teaching, most of them graduate from secondary school unable to

use the language for communicative purposes".

The demand of the increasingly competitive job market along with massive scholarship programs by Saudi government have dictated the need for English language skills among school leavers. To this end, a number of steps have been taken; one of them being to introduce EFL instruction earlier in a child's life. This direction is best represented by private schools where English is met in the first day of schooling, when the child is 6. Meanwhile in state schools, English was introduced in grade 6 of elementary, when the child is roughly 12. However, by the end of the intermediate stage, both early and late beginners tend to study the same syllabus, where they seem to manifest the same, overlapping level of performance, even the distinction of those who began earlier from those who began late is totally uneasy. Al-Mofreh a Shoura Council member, who saw no big difference between private school graduates and their state school counterparts, pointed out in a newspaper interview on April, 9, 2011 that graduates of secondary schools start searching for English language- teaching institutes when they have the opportunity to study abroad.

This study investigates this overlap, despite the difference in the age of first exposure. It focuses, mainly, on the role of age in language proficiency of Grade 1 intermediate school students, early starters, *henceforth* (ESs) and grade 3 intermediate school students, who represent late starters (LSs).

3. Research Questions

This study attempts to respond to the following questions:

1. What is the relationship between the age of first exposure and the ultimate attainment of English as a foreign language?
2. To what extent does age determine the attainment in morphosyntax achievement?
3. How far the age of first exposure can affect the attainment of vocabulary?
4. Which group, early starters or late starters, outperforms the other?

4. The Subjects

The subjects of this study were 62 intermediate school students who were divided into two groups; (Grade1) 31 subjects and (Grade 3) 31 subjects. They began learning English at 6 and 12 years of age respectively, representing two age groups: children and early adolescents; two crucial and controversial points in all critical period (CP) accounts. Both groups of learners have learned English at school, taught by non-native English teachers who hold BA in English from either Saudi, Egyptian or Sudanese universities. All the subjects have never been exposed to the language informally or otherwise in any other contexts outside school.

4.1 Early Starters (ESs)

This group is composed of 31 first graders, who attended private schools, where English learning is always started on the first day of schooling, when children are 6 years of age, carrying on with two- 45-minute classes a week through their entire primary school years,

until they were in the first grade intermediate - at the time of the test. By the end of their elementary school, these learners will have spent a range of 288 instructional hours distributed over a period of six school years. When they entered intermediate school, classes were mounted up from only 2 classes a week in elementary to 4 classes a week in intermediate school. By the end of their first year intermediate, they have studied 96 additional classroom hours, added to the 288 of elementary they will have, therefore, a total amount of exposure of 384 hours, at the time they were tested. Their age of onset of learning (6 years) indicates that they were in the midway through their CP when they could have still maintained their brain plasticity (Penfield and Roberts, 1959) and lateralization is slowly taking shape in their brains (Lenneberg, 1967). However, by Krashen and Pinker's calculations these learners are right on the top of the hill of their CP where lateralization is totally complete (Bialystok, Hakuta and Wiley, 2003).

One criteria of choice in this group is that a participant should have continued learning without stopping throughout elementary school years. It happens sometimes that a learner might start in a private school, continuing for two or more years, then drops out and joins a state school to find English programme has not yet started there. Break reduces the amount of exposure required for a participant. Another criterion of choice is that a participant should have stayed in one and the same school over a period of seven years, prior to the test time. Changing school, teachers, environment, colleagues and the general atmosphere of learning may make a difference in the learner's ultimate achievement. Two schools were chosen for ESs are ones that represent the model of private education in the region where the study took place. In those schools, lessons of all subjects, English is no exception, are mostly carried out using 'overhead projector' to show flash cards, power point slides and audiovisuals.

It is also required, as in the second group, that participants should range in their level of achievement in English between high to average. This is because other variables affecting learning process need to be controlled in order to see the extent to which age can affect learning. The participants' level of achievement is decided reflecting on their general school and classroom performance.

4.2 Late Starters (LSs)

This group is also composed of 31 third graders attending government schools where English is introduced at grade 6 elementary school when they were 12 years old, proceeding through third intermediate (when tested). This group represents the mainstream public school English language programme in Saudi Arabia. The onset of learning of this group -age 12- represents a cut-off point, according to the strongest version of CP of lateralization.

To these researchers, age 12 is the point when lateralization is complete and CP finally comes to a total halt. Little exception to this is Johnson and Newport (1989) who proposes age 15 to be the point at which the critical period ceases to function as an effective second language learning mechanism and beyond which this mechanism stabilises. Since the outset of their intermediate school, these learners were exposed to English on a rate of four classes of 45-minute lesson, 3 hours a week, spending a total of 288 hours of formal classroom instruction. Added to the 48 hours of grade 6 elementary, the overall amount of exposure to

English of this group is 336 hours. Although ESs have an extended overall time of exposure 384 hour, LSs have a larger exposure mean. Therefore, the exposure mean for ESs is 54:51:06 hours, on the other hand it is 84:00:00 hours for LSs - approximately 30 hours mean difference. This explains that ESs have an extensive exposure while LSs have an intensive one.

As for the subjects, one condition of choice is that they should have unbroken stay in the same school from they started intermediate school level to the time of the test. They should not also have started English prior to the time when English is officially begun in state school, in grade 6.

In particular, both groups have a virtually constant amount of exposure to English, however, they have different points of headstart. The former started learning at the middle of their CP and was tested by the offset, they were 13 years old by the time of the tests.

5. Materials

Data for this study were collected using two types of tools; judgment of grammaticality test and vocabulary test. The tests were designed mainly using the most common classroom and textbook language of everyday school life. Items tested were those that students either have learned or encountered in one context or another over their school years.

5.1 Grammar Test

Grammaticality judgment was composed of a set of 50 items, containing 100 statements of equally the same size and length. For each pair of statements, one was grammatical and the other was ungrammatical; and the subjects had to choose the grammatical ones by marking them with a single tick (√). The pairs in each question were apparently the same in almost everything; structure and number of words in each, differing only in one rule violation contained in the ungrammatical one. Rule violation may be in form of inserting a bound morpheme, wrong wh-question, or word order, as it is described below.

Each set of the ten questions was designed to test the subjects' English morphosyntactic knowledge in certain area of grammar. The five rule types tested in this section were representatives of the most basic aspects of English sentence that a learner is highly likely to encounter in any instructed EFL context. These rule types are personal pronouns, present simple tense, wh-questions, regular/irregular plural nouns and adjective- noun word order. The grammatical violation is made by one of these steps: 1. incorporating two pronominal items in places where only one possibility is grammatical. 2. adding or omitting a bound morpheme (in present simple and plural nouns). 3. incorporating incorrect wh-question word 4. incorrect adjective- noun word order.

5.2 Vocabulary Test

The vocabulary test was modeled around grand themes to cover a wide range of everyday life situations; (family relations, school environment, jobs and other most familiar vocabulary items). It was designed in two formats; a multiple choice format and matching format. The multiple choice format consisted of 40 questions each contained three choices (a, b and c),

one correct answer and two distracters; the subjects had to put a circle around the letter of the correct choice. The second part of the test was the matching format in which the subjects had to match a word to its opposite.

6. Results and Discussion

The subjects' performance was viewed from two broad perspectives; quantitative and qualitative. Quantitatively, the students' scores means were compared, percentages were calculated, and standard deviation and correlation coefficient were also used. Qualitative analysis, on the other hand, was done to highlight those areas of strength or weakness that seemed to accompany each group learning style, regarding the aspects of language tested - vocabulary and morphosyntax.

6.1 Results of the Vocabulary Test

6.1.1 Comparison of the Mean Score between ESs and LSs

To begin with, a percentage analysis was done so that students' performance is viewed from three points; the highest, medium and the lowest score. As far as the highest score is concerned, no subject in either group got the perfect mark, nonetheless, 9.7% of ESs scored between 40 and 49, indicating that only 3 subjects out of 31 ESs have performed in a range of highly successful learners. While on the other hand, 16% of LSs (5 subjects) scored in this same range. This suggests that more subjects of LSs performed in a higher range than ESs did, however, none had scored the perfect mark. Nonetheless, as regards the body of the score lying between 25 and 40, it is occupied by 64% (20 subjects) of LSs which is comparably greater than LSs, 44.8% (14 subjects). More to the point, 80% of LSs performance lies within this range (25 – 49), whereas 54.4 % of ESs performed therein.

Conversely at the lower end, a considerably good number (44.4%), comparable to almost half of ESs performance kept ranging in the area falling down 50% of the perfect score, compared to 19.2% of LSs who performed therein. Tables (1 and 2) describe the percentage points of score relevant to the total number of ESs and LSs. Given the quality and overall distribution of the vocabulary scores, it doesn't seem that any of the two groups showed any degree of ceiling effect. That is, the subjects of both groups experienced a considerable degree of difficulty, not only in the vocabulary test but also in the grammar test.

Table 1. ESs Vocabulary Performance

Marks	Frequency	Percent	Cumulative Percent
15.00	1	3.2	3.2
16.00	1	3.2	6.5
17.00	2	6.5	12.9
18.00	2	6.5	19.4
19.00	1	2.3	22.6
20.00	2	6.5	29.0
21.00	1	2.3	32.3
22.00	1	3.2	35.5

23.00	1	3.2	38.7
24.00	2	6.5	45.2
25.00	1	3.2	48.4
26.00	1	3.2	51.6
27.00	1	3.2	58.1
30.00	2	6.5	64.5
32.00	5	16.1	80.6
35.00	1	3.2	83.9
36.00	1	3.2	87.1
37.00	1	3.2	90.3
44.00	2	6.5	96.8
49.00	1	3.2	100.0
Total	31	100.0	

Table 2. LSs Vocabulary Performance

Marks	Frequency	Percent	Cumulative Percent
17.00	2	6.5	6.5
18.00	1	3.2	9.7
22.00	1	2.3	12.9
23.00	2	6.5	19.4
25.00	2	6.2	25.8
26.00	2	6.5	32.3
27.00	1	3.2	35.5
28.00	1	3.2	38.7
29.00	1	3.2	41.9
30.00	4	12.9	54.8
31.00	1	3.2	58.1
32.00	2	6.5	64.5
33.00	1	3.2	67.7
34.00	3	9.7	77.4
35.00	2	6.5	83.9
40.00	1	3.2	87.1
46.00	1	3.2	90.3
47.00	1	3.2	93.5
48	1	3.2	96.8
49	1	3.2	100.0
Total	31	100.0	

LSs mean is (30.84), which is quantitatively higher than ESs (27.23). This, primarily, shows LSs supremacy in vocabulary performance. However, as the mean is always affected by the extreme values fluctuation in both ends, it provides only partial view of the general performance without, of course, explaining how subjects performed within the range of score lying between these ends. Thus, dependence on the mean alone analysis would only give

blanket generalizations of the actual performance. Therefore, a more screened value of the mean was obtained by computing the Trimmed Mean. A 5% from the lowest and the highest value was subtracted, so that any possibility of anomaly in the truth value of the mean is reduced to the minimum. Thus, the trimmed mean of ESs vocabulary performance is 26.77 compared to 30.62 of LSs, which is again higher than ESs. The reliability of these statistics stand out at 95% confidence interval, showing accuracy of the actual mean as lying somewhere between 23.99 and 30.46 for ESs and between 27.72 and 33.95 for LSs (see table 3 below).

Table 3. Representation of ESs and LSs Vocabulary Performance in Different Statistical Measures

Descriptive statistics			
		Statistics	Std. Error
ESs Vocabulary	Mean	27.2258	1.58536
	95% Confidence Interval for Mean	Lower Bound	23.9881
		Upper Bound	30.4635
	5% Trimmed Mean	26.7742	
	Median	26.0000	
	Std. Deviation	8.82689	
	Minimum	15.00	
	Maximum	49.00	
Range	34.00		
LSs Vocabulary	Mean	30.8387	1.52548
	95% Confidence Interval for Mean	Lower Bound	27.7233
		Upper Bound	33.9542
	5% Trimmed Mean	30.6183	
	Median	30.0000	
	Std. Deviation	8.49351	
	Minimum	17.00	
	Maximum	49.00	
Range	32.00		

6.1.2 Comparing the Two Groups' Individual Differences

In terms of intra/inter groups differences, it can be noticed that the intra-group differences are far greater than inter-groups differences. Subjects of the same age group might perceive and process language data differently, so this may interpret the wide individual variations among subjects of the same group. Providing that these variations are a consequence of differences in perception, then, age ceases effect on how an individual learns vocabulary. One possible method of describing this; how individuals of the same group performed near or away from the centre of scores, is by employment of standard deviation and standard error. The

approximate distance away from the centre of scores that every individual of ESs is likely to display SD is 8.83, which is further away from the Mean compared to LSs SD 8.49. This indicates that the variations among ESs in the level of vocabulary achievement is slightly wider and more noticeable than those among LSs. The difference is less than half a percentage point. It follows from this that when it comes to vocabulary learning there may be no significant differences between people during or after their critical period, hinting that vocabulary learning is, more or less, not among those language levels that are said to be highly sensitive to age effects. Vocabulary learning, then, is neither strictly bound up by early critical period nor is it susceptible to early fade-out. Instead, vocabulary learning would continue to develop even after an individual traverses the customary limits of their critical period. In the meantime, the standard error of the mean is 1.59 for ESs and 1.53 for LSs.

In a nutshell, both groups performance according to different statistical measures has so far been discussed. In the remaining part of vocabulary analysis, a discussion of those vocabulary areas that are likely to pose difficulty to either or both groups is to be made.

6.1.3 Areas in Vocabulary that are most Affected by Age

As for the vocabulary items that involve potential difficulty, the magnitude of error falls on job-related areas. It is frequently noticed, throughout the test, that many individuals across groups by definition erred therein. Indiscriminately, both groups have mistaken the choice in job areas; 70.4%, 22 subjects, of ESs, and even greater number of late starters 80% , 25 subjects, made wrong choice with reference to this area of vocabulary. This constitutes the highest rate of error occurrence in both groups, though, less frequent with ESs. This homogeneity would suggest that, in FL contexts, ESs as well as LSs tend to apply the same strategies of learning vocabulary and the contrast between them are not absolutely that sharp. Table (4) provides description of frequency of vocabulary errors according to both groups performance. Still, some areas in vocabulary seem to pose difficulty to one group but not to the other. For instance, 64% of ESs found it uneasy to successfully distinguish between beautiful, delicious, and pretty to fill the gap in the sentence: My mother cooks.....meals for us. However, this did not seem to attract the same magnitude in the LSs performance.

Table 4. Representation of the Rate of Vocabulary Errors as Displayed by the Subjects of both Groups

Vocabulary area	ESs error %	LSs error %
Jobs	70.4%	80%
Places	67.2%	54.4%
Clothes	60.8%	60.8%

On the other hand, do, work, and make were remarkably difficult to be clearly distinguished by LSs in the statement: He for a big oil company, in which 60.8% of LSs mistook the choice. The fact is that if this vocabulary item creates more difficulty for one age group of learners but not for the other, then this couldn't have happened by sheer coincidence, rather there may be some underlying cause for this. Two paths of interpretation could possibly be available here. Thus far, one plausible interpretation may be that it is an issue of prioritization.

That, during the initial stages of their learning, people of different ages give priority to items that best serve their learning needs while filtering out others as irrelevant. In addition, there are some vocabulary items that encompass conceptual complexities and high cognitive load so dense as to require a degree of brain maturation, instead of mere brain plasticity or lateralization.

6.2 Results of Grammar Test

6.2.1 Comparison of the Mean Scores of ESs and LSs

Regarding ESs grammar, none of them got the perfect score, nevertheless 9.7% scored within the range between 47-40, virtually similar to their vocabulary performance. This time, however, they had 47 as the top score and 44 as the second top score, lowering further down from their vocabulary score (table 5 below) where 49 was the top score and 44 was the second top. This may, to some extent, show a degree of consistency in ESs performance.

Table 5. Representation of ESs Grammar Performance in Frequency and Percentages

ESs Grammar				
Valid		Frequency	Percent	Cumulative Percent
	23.0	1	3.2	3.2
	27.0	6	19.4	22.6
	28.0	3	9.7	32.3
	29.0	3	9.7	41.9
	30.0	2	6.5	48.4
	31.0	2	6.5	54.8
	32.0	4	12.9	67.7
	34.0	3	9.7	77.4
	36.0	1	3.2	80.6
	37.0	1	3.2	83.9
	38.0	2	6.5	90.3
	41.0	1	3.2	93.5
	43.0	1	3.2	96.8
	47.0	1	3.2	100.0
	Total	31	100.0	

Whereas more subjects of LSs (19.4%) scored in the same range (49 -40), with 49 as the top score which is significantly higher than ESs, but different from their vocabulary performance, no one scored the full mark, however, 87% of ESs scored in the mass of scores lying between 40-25, while this range was occupied by 93.55% of LSs. At the lower end, ESs scored a bit higher than LSs by two subjects scoring at 23, while one late starter scored at 21 (see table (6) below).

Table 6. Representation of LSs Grammar Performance in Frequency and Percentages

LSs Grammar			
Valid	Frequency	Percent	Cumulative Percent
21.00	1	3.2	3.2
24.00	1	3.2	6.5
25.00	2	6.5	12.9
26.00	1	3.2	16.1
28.00	1	3.2	19.4
29.00	2	6.5	25.8
30.00	2	6.5	32.3
31.00	3	9.7	41.9
33.00	1	3.2	45.2
35.00	4	12.9	58.1
36.00	4	12.9	71.0
38.00	2	6.5	77.4
39.00	1	3.2	80.6
41.00	1	3.2	83.9
42.00	1	3.2	87.1
43.00	1	3.2	90.3
45.00	2	6.5	96.8
49.00	1	3.2	100.0
Total	31	100.0	

The ESs grammar mean score is 31.87 which is higher than the same group vocabulary mean (27.22) and also higher than LSs vocabulary mean (30.83). However, ESs scored lower than LSs in vocabulary whose mean is (34.09). Generally speaking, it is clear from this that both groups had done better in their grammar test than in their vocabulary test, especially regarding the average score, and lower end, though not necessarily in upper ends. The 0.5% trimmed mean of early starters is 31.52, while it is approximately 34 for late starters, (see table (7) below).

Table 7. ESs and LSs Grammar Scores in Different Statistical Measures

Descriptive statistics				
			Statistic	Std. Error
ESs Grammar	Mean		31.87	.965
	95% Confidence Interval for Mean	Lower Bound	29.89	
		Upper Bound	33.84	
	5% Trimmed Mean		31.523	
	Std. Deviation		5.377	
	Minimum		23.00	

	Maximum	47.00	
	Range	24.00	
LSs Grammar	Mean	34.096	1.217
	95% Confidence Interval for Mean	Lower Bound	31.610
		Upper Bound	36.583
	5% Trimmed Mean	34.016	
	Std. Deviation	6.7791	
	Minimum	21.00	
	Maximum	49.00	
	Range	28.00	

6.3 The Correlation between Age and Ultimate Attainment

As far as the overall performance is concerned, there's no statistically significant correlation between the age of onset of learning and the ultimate attainment in morphosyntax and vocabulary. The correlations between age and grammar is $r = 0.18$, $P > 0.01$ and between age and vocabulary is $r = 0.21$, (see table 4). Given this, it seems that age doesn't have self-evident impact on learners' performance in both levels of language. However, as regards the relation between morphosyntactic structures and vocabulary there appears a statistically significant correlation between both groups' performances in vocabulary and grammar, $r = 0.75$, $p < 0.01$. It can be understood from this that attainment in one level of language is, to some extent, dependent on the other, and that there's no demarcating line that assigns an underlying competence to each language level. Rather, both grammar and vocabulary are learned equally and through the same mechanisms and are subject to the same social and cognitive factors. This would permit us to suggest that, in foreign language contexts where only minimal language is available, morphosyntactic knowledge along with lexical knowledge are not subject to early critical period, rather, learners can continue to learn their vocabulary hand in hand with their grammar even after turn-off of their CP inasmuch as an adequate and comprehensible linguistic input is guaranteed. Therefore, the strong-held view of CP that previous studies have suggested may not fully interpret this present case.

Previous studies like Johnson and Newport's (1989) found a strong negative correlation between the age of exposure and the ultimate attainment in English morphosyntactic rules, but such finding might be a result of a totally different input setting. De Keyser (2000) and Seol (2005) replicating Johnson and Newport (1989) found in addition to the strong effects of age on learning, there is also a great impact of the individual verbal analytical abilities upon the end-state language attainment.

The difference between the result of this study and the aforementioned ones is one of setting. That is, those studies that found strong negative correlations were conducted under circumstances where learners are exposed to language in naturalistic settings. That's, they were either partially or totally immersed in the community of the language being learned, whereas in the minimal input settings, like the present case, where learners are exposed to the language in wholly different circumstances; in one place; the classroom, from one source; the

teacher, and in one time; the lesson, the amount of exposure a learner gets is, by all accounts, much less than is sufficient to allow age to extend its full potential effect upon learning. Studies conducted under minimal input circumstances; however, yield a different line of evidence, in that they either found absolutely no correlation of any sort between attainment and age or a positive linear correlation between the age of onset and the attainment in that particular language. Burstall and Harley (1975) who, in a large-scale study investigated the performance of British pupils learning French, found that there is a strong positive relation between the age of exposure and the attainment in all aspects of language. Snow and Hoefnagel-Hohle (1978) reached the same results when investigating the performance of English speakers of different ages learning Dutch. Bialystok, Hakuta and Wiley (2003), studying a large population of 2.3 million Americans of mainly Chinese and Spanish language backgrounds found slightly little effects of age on the eventual attainment, arguing if regression in the level of attainment existed, it would be at an age later than puberty. Al-Thubaiti (2010) studied the performance of 132 subjects, Saudi college students, who have various starting-points of learning English, finding no statistically significant effect of starting age on second language performance, but clear effects of rule type. Al-Thubaiti finding shows that not only in initial stages is such correlation possible, but it also persists to be conspicuous in end- state performance.

As it has become evident from the preceding argument that the age of exposure has a strong positive correlation with the level of performance in that the older is the learner at the start, the better will be the attainment at the final state. This will by no means an indication that subjects performed identically in all language aspects. In effect, there are differences among and between groups in terms of the average score and overall performance.

ESs vocabulary mean is 27.23, and it is 31.87 in grammar, while the mean for the overall language performance of this group is 59.065. In contrast, LSs vocabulary mean is 30.84 and in grammar it is 34.096, whereas the mean in the total language performance of this group is 64.94. Now the difference is clear; 3.61 points between LSs and ESs in vocabulary, 2.23 points in grammar, while in the overall performance the difference is 5.84 points.

These values, although statistically insignificant differences, suggest that LSs did better than ESs not only in separate levels of language but also in the overall performance in those levels added up. One plausible explanation to these little differences in performance between ESs and LSs may be that ESs didn't receive adequate linguistic input that may enable them to take advantages of their early start, thus the longer time overall hasn't brought any special learning benefits for ESs. With this inadequacy of linguistic input, it seems, little has been gained by ESs over their prolonged seven years they have spent learning the language.

Table 8. The Correlation between ESs and LSs Age of Onset and their Overall Performance in Vocabulary and Morphosyntax

Correlations				
		Grammar	Vocabulary	Age
Grammar	Pearson Correlation	1	.751**	.182
	Sig. (2-tailed)		.000	.157
	N	62	62	62
Vocabulary	Pearson Correlation	.751**	1	.207
	Sig. (2-tailed)	.000		.106
	N	62	62	62
Age	Pearson Correlation	.182	.207	1
	Sig. (2-tailed)	.157	.106	
	N	62	62	62
**. Correlation is significant at the 0.01 level (2-tailed).				

6.4 Comparing the Two Groups' Individual Differences

Both groups have shown a remarkably narrow margin of individual variations in their grammar scores relative to their vocabulary. They also showed a short range in grammar 24 and 28 for ESs and LSs respectively. While in vocabulary their ranges were 34 and 32 respectively. This can mean two things; a) unlike vocabulary which is infinite in a sense that an individual can pick up what he needs from an endless list of items, grammar, on the other hand, is finite and disciplined, inasmuch as it is governed by particular sets of finite rules, thus it can be learned by rote memorization of the rules, and b) learning of grammar follows a predictable order. Perhaps it's due to some lexical compatibility or structural proximity between an L1 and L2 that learners tend to learn some morphemes, words or structures earlier than others in a rather predictable fashion.

The individual differences among ESs are smaller, $SD = 5.38$, while they are more noticeable among late starters, $SD = 6.78$, these data are summarized in table (4). The standard error (SE) difference between the two groups is 0.25 which is lesser compared to the disparity in both groups vocabulary performance which is 0.34.

It is presumed throughout age- related literature that LSs have learning characteristics that are wholly different from those of ESs, and that these characteristics never occur outside LSs learning style. It was noticed that LSs have a larger vocabulary size than grammar and a greater receptive than productive skills. This assumption has found support in evidence from neurology that suggests the human genetic capacity to acquire language rules, Universal Grammar (UG, would cease to function as early as the onset of puberty). Then, access to that capacity would increasingly be difficult with age. However, the present study's got different findings, that LSs didn't only surpass in vocabulary (LSs mean: 30.84, ESs mean: 27.23), but they showed superiority in grammar (LSs mean: 34.1, ESs mean: 31.9), a feature peculiar to ESs only.

Thus, this evidence suggests that in minimal input settings, learning circumstances might impose on the learner a different cognitive architecture that keeps a narrow path of access to UG open even when the learner traverses the limits of their critical period. Therefore, driven by their instrumental motivation and through laborious processes of trial and error, late starters can set up cognitive maps and schemas that can be called to the fore during learning process, thus enabling them to be better grammarians and semanticists.

In sum, it is unmistakably evident from the preceding discussion that LSs outscored ESs in both vocabulary and grammar, even though ESs were three years distant from their CP. An alternative hypothesis would be that LSs outscored ESs in vocabulary and morphosyntactic rules. This is may be true as far as instructed SL/FL are concerned but doesn't necessarily reflect the state- of- the art of all contexts. In naturalistic settings; however, ESs may have immeasurably higher advantages compared to LSs in the same contexts.

6.5 What are the areas in grammar that are most affected by age?

Analysis of grammar performances of both groups has revealed three important facts: a) as they did in their vocabulary test, LSs again outperformed ESs in grammar test, b) the magnitude of errors of both groups clustered around two rule types, and c) the individual differences among ESs were comparatively smaller than LSs, despite late starter's supremacy on the ultimate performance. The grammar test comprised of five rule types: personal pronouns, present simple tense, wh-questions, regular/ irregular plurals and adjective-noun word order.

As far as both groups are concerned, it is clear that there is a clear tendency for error-making around certain rule types; especially present simple and personal pronouns (see table (9) below).

Table 9. Representation of ESs and LSs Grammar Errors in Percentages

Rule type	ESs error %	LSs error %
Personal pronouns	48%	54.4%
Present simple	51.2%	48%
Wh-questions	54%	38.4%
Regular/irregular plurals	44.8%	38.4%
Adjective-noun order	48%	44.8%

Four of the five rule types tested seem to pose a considerable difficulty for ESs, though varying in their degree of difficulty and frequency of occurrence. Some rules, nonetheless; such as present simple and wh-question, have a high frequency of error than others, receiving 51.2% and 54% respectively. Meanwhile other rules have only a Low frequency of error occurrence, posing difficulty for some learners but not for others, and the percentage of their occurrence doesn't go far beyond the chance level.

Of low- frequency error rules are: personal pronouns and adjective- noun order; which were mistaken by about approximately half the number of ESs. While regular and irregular nouns dichotomy received the least errors; only 14 subjects out of 31 ESs mistook these rules. A

significant number of LSs, on the other hand, found it difficult to judge on grammaticality of sentences including present simple and personal pronouns, though personal pronouns received error-magnitude - that is higher and remarkably more conspicuous than mere coincidence. In particular, of the ten sentences used to test each rule, some sentences polarized substantial weight of errors among and between groups than others. For instance, among ESs, grammaticality was blurred in the following constructions:

1. Subject- verb concord in present simple:

- 1) He work in an office. ()
He works in an office. ()
- 2) Ali and Fahad goes to the same school. ()
Ali and Fahad go to the same school. ()

2. Wh-questions distinction:

- 1) What school do you go to? ()
Which school do you go to? ()
- 2) How much brothers and sisters have you got? ()
How many brothers and sisters have you got? ()

3. Adjective- noun order:

- My grandmother is 75. She is a woman old. ()
My grandmother is 75. She is an old woman. ()

A significant number of LSs, 17 subjects, experienced more difficulty in personal pronouns than in other rule types, specifically, they weren't able to judge correctly on subject/ object pronouns in these constructions:

- Is she a teacher? ()
- Is her a teacher? ()

Present simple received a significant error magnitude by LSs, which fell mainly on subject-verb concord in equally the same way as ESs. This pair of sentences, for instance, polarized the most errors 48% of LSs:

- He work in an office. ()
- He works in an office. ()

The fact that learners of a particular age seem to likely experience more difficulty in one rule type but not in the other, may suggest two facts: a) learning of grammar follows a utilitarian logic, which suggests a predictable order of acquisition. That's, those language items that are learned first are the ones that are very important to the learner and can best meet their present need, while delayed items are the least to do so, thus they are factored out or delayed until a later need or necessity dictates their learning, and b) some items don't seem to pose any degree of difficulty during the early stages of foreign language encounter, that's simply because they don't impose on the learner a complex task of data processing, therefore such items can be easily learned by all people of all ages, while others impose on the learner complex data processing, as they involve heavy conceptual or cognitive load. Such data processing requires an earlier experience and pre-existing schemas which is best represented

in LSs learning, but less unavailable to ESs due to the paucity of their foreign language input and lack of pre-existing.

7. Conclusion

The results of this study have shown that late starters have outperformed early starters in all respects of the language, except in that early starters have shown a relatively shorter range of individual variations. It was also found that there was a weak correlation between the age of exposure to English and the ultimate attainment $r = 0.18$ and 0.2 for grammar and vocabulary respectively. However, a strong positive correlation between vocabulary and grammar attainment $r = 0.75$ and. This indicates that in minimal input contexts, where only classroom exposure is available, the age of the onset of learning a foreign language doesn't maintain any superior position over the other variables.

The introduction of FL in primary or elementary school is a very important change in education. Nonetheless, trusting age with the burden of language learning success without doing enough empirical research is clearly as risky to FL education as ruinous to any attempt at reform. In order for SL/FL to be effective, and in order for the age of start to have its full potential effects, the following points are to be carefully scrutinized by those whom it may concern:

1. Enough teaching time in the curriculum is the most reliable predictive factor in success.
2. Intensity of exposure and length of time overall. Learners who attends 4 hours a week is building on much more solid ground than that who attends only 2.
3. Bridging the gap. This can be done by a syllabus that can smoothly take learners from one grade to the other or one stage to the next without gapping $i+1$.
4. Age appropriate curricular and extra-curricular activities to include learning styles and cognitive conditions; teaching/ learning strategies; compensatory resources and integration of content and language.

References

Al Mahana, A. (2010). English Language Teaching in Saudi Arabian Context: How communicatively Oriented is it? *Journal Of king Saud University*, 22, Lang. & Transl. Riyadh 2010.

Al-Thubaiti, A. (2010). *Age Effects in a Minimal Input Setting on the Acquisition of English Morpho-Syntactic and Semantic Properties*. PhD. Dissertation, Department of Language and Linguistics University of Essex. UK.

An Interview with Ahmed AL.Mofreh, a Shoura Council Member, and a member of the council's Education Committee, from AlMadidah Daily. Friday April, 8, 2011: Arabnews.

Asher, J., & Price, B. (1967). The Learning Strategy of the Total Physical Response: Some Age Difference." *Child Development*, 38(1967), 1219-1227. Retrieved from <https://www.jstor.org/stable/1127119>

- Bialystok, E., Hakuta, K., & Wiley, E. (2003). Critical Evidence: A Test of the Critical-Period Hypothesis for Second-Language Acquisition. *American Psychological Society*, 14(1). Retrieved from <https://www.researchgate.net/publication/10919288>.
- Burstall, C., Stern, H., & Harley, B. (1975). Primary French in the balance. *Educational Research*, 17, 193-198. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1944-9720.1977.tb02979.x/abstract>
- Chomsky, N. (2006). *Language and Mind: Linguistic Contributions to the Study of Mind (Future)*. Cambridge: Cambridge University Press.
- De Keyser, R. M. (2000). The Robustness of Critical Period Effects in Second Language Acquisition. *Studies in Second Language Acquisition*, 22, 499-533. August 2015 with 590 Reads. <https://doi.org/10.13140/RG.2.1.3958.4486>
- Johnson, S. J., & Newport, L. E. (1989). Critical period effects in Second Language Learning: The influence of the Maturational State on the Acquisition of English as a Second language. *Cognitive Psychology*, 21, 60-99. Retrieved from <http://www.tandfonline.com/loi/pecp20>
- Lenneberg, E. (1967). *Biological Foundation of Language*. New York: Wiley Press.
- Penfield, W., & Roberts, L. (1959). *Speech and Brain Mechanisms*. Princeton: New Jersey. Princeton University Press.
- Seol, H. (2005). The Critical Period in the Acquisition of L2 Syntax: A Partial Replication of Johnson and Newport (1989). Columbia University Working Papers in *TESOL & Applied Linguistics*, 5(2).
- Singleton, D., & Lengyel, Z. (1995). *The Age Factor in Second Language Acquisition*. Clevedon: Multilingual Matters Ltd.
- Snow, C., & Hoefnagel-Hohle, M. (1978). The Critical Period for Language Acquisition: Evidence from Second Language Learning. Blackwell Publishing. *The Society for Research in Child Development*. Retrieved from <https://www.researchgate.net/publication/260119193>
- Tomb, W. (1925). On the Intuitive Capacity of Children to Understand Spoken Language. *The British Journal of Psychology*, XVI(I). <https://doi:10.1111/j.2044-8295.1925.tb00360.x>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>)