

## Role of Formal Input Exposure and Onset Age in Grammaticality Judgement

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### ABSTRACT

*This study examines the effects of formal input exposure and the onset age of exposure on the performance of eleven different morphosyntactic structures in a foreign language setting. It studies whether being exposed to longer hours of formal language classes at a younger age is advantageous for Iranian EFL learners. Some studies have claimed that there is no advantage for early starters and in the field of grammatical learning, later starters perform better. Four groups of Iranian learners with different formal learning times participated in this study: Groups A and B were public and private school students, respectively, whereas Groups C and D had extra supplementary classes at language institutes as well. A Grammaticality Judgement Task (GJT) including some grammatical structures which were claimed to be problematic for EFL learners, was used as a tool to determine the possible differences in the performance of grammatical structures of the four groups. A two-way ANCOVA and a one-way ANOVA were used to analyse the data. Results suggest that long hours of formal exposure lead to better grammatical performance and the participants who started learning English at age 9 or below performed better in the GJT.*

*Keywords: input exposure; Critical Period Hypothesis; onset age; grammatical learning; age effect on EFL learning.*

### INTRODUCTION

Learners' improvement in language acquisition depends on a number of factors such as cognitive style, the nature of input, the starting age of the L2 learning, learners' motivation, teachers' expertise and the impact of the first language. Johnstone (2002) claims that the influence of age on the L1 has been definitely proven and it is believed that the L1 learning process is under the influence of 'critical period'. The issue of the influence of age on second language acquisition has been studied for a long time and has initiated debates among language theorists and linguists (Larson-Hall 2008, Huang 2009, Dimroth 2008, Frediani 2008, Slabakova 2006, Bialystok & Hakuta 1999). A lot of discussions are on whether there is also an onset and offset, or a negative or positive effect of age, on learning L2 or foreign languages. Researchers have arrived at various but inconclusive results about when the best time to start learning and teaching a second or foreign language is.

On the other hand, the effect of language input on the learners' performance is emphasised and the amount of exposure or language input is also introduced as an important factor in the language learning process (Sebastian-Galles 2005, Borovsky 2008, Kharkhurin 2008, Huttenlocher et al. 2002, Francis 2003, Larson-Hall 2008, Unsworth 2008, Mo'tamed Sharee'ati 1991). According to Sebastian-Galles et al. (2005), if the amount of input is

sufficient, learners can easily learn even the difficult aspects of the language. Huttenlocher et al. (2002) state that great amounts of exposure results in the better comprehension and production and greater syntactic forms in the input leads to gaining a higher level of skills. It is even claimed that a great amount of exposure results in the elimination of incorrect forms and makes learning easier (Francis 2003). Ahamad Shah (2003) mentions that focusing on linguistic forms would be helpful for language learners from two perspectives: improvement of input processing and accuracy in their production. Late starters are believed to be better language learners than early starters, because of the advantage of cognitive maturity (Frediani 2008).

The issue of whether or not sufficient amount of instructional input is provided in schools for language learners in Iran has been under debate for a long time. In Iran, schools are divided into two categories: public (state-funded) school and private school which follow different teaching hours syllabuses. In public schools, English is taught starting from the first grade of junior high school (at the age of 12), whereas in private schools, English is taught starting from the second grade of primary schools (at the age of 8). Studies imply that the late start in teaching/learning English in public junior high school (age 11) and the insufficient and little time allocated to teaching English in public schools can be some of the reasons for the failure of Iranian learners in achieving language proficiency (Rezaeeyan 2001, Mo'tamed Sharee'ati 1991, Bakhshi 1995, Ghasemi 1996, Sa'adat 1995). On the other hand, it is believed that language is learnt through grammar and communication is facilitated by good grammar. This study examines grammatical performance of Iranian EFL learners from two perspectives: first, it studies group differences according to different degrees of formal instructional input and second, it tries to find the role of age in the better grammatical performance of the learners.

## LANGUAGE INPUT

Clearly, the influential role of language input in learning the first language is proved (Brown 1994) and its role in the form of quality, quantity, length and starting age of L2 instruction is under discussion. The word 'input' is associated with Krashen's (1981) Input Hypothesis claiming that the learning input must be at a level that, by hearing and reading, language learners will be able to acquire a target language so that their input knowledge becomes  $i+1$ . "In other words, the language which learners are exposed to should be just far enough beyond their current competence that they can understand most of it but still be challenged to make progress" (Brown 1994, p.280).

Specifically, language input matters a lot in foreign language learning settings like Iran, where learners do not have much access to authentic materials, except in formal classes at school or language institutes as supplementary classes for language learners who wish to obtain better proficiency and fluency in foreign languages. On the contrary, in second language learning settings, learners have unlimited access to the target language because the learning process occurs consciously or unconsciously, inside or outside the class. Thus, instructional input plays a big role in the learning procedure in foreign language learning settings and Iranian language learners rely a lot on the formal classes for learning English.

## THE ROLE OF INSTRUCTIONAL INPUT

The effects of input in an instructed setting and the long-term effects of starting age are studied by Munoz (2011). According to Munoz, time advantage, which was introduced by Carroll (1969) as one of the most valuable factors in L2 acquisition, is gained by an early start. Munoz argues that the "longer the period of study, the better the achievement because children have more time to practice the use of language and doing it over longer periods"

(p.118). Using proficiency, phonetic identification, lexical reception tests and an English learning biography questionnaire, Munoz tested 162 undergraduate Spanish/Catalan students with more than 10 years of English instruction. They were studying in an English degree at a Spanish university. All of them were 30 years or older. She concluded that starting age has no effect on the proficiency outcome of L2 learners in the long run; however, there were significant relationships between language proficiency and some measures of the length of exposure, such as the total length of exposure in curricula and extracurricular hours, length of exposure in years, recent hours of exposure in university, staying abroad and current frequency of contact with the target language outside class. There was a significant correlation in the lexical test, suggesting that learners with more exposure performed better. Hence, Munoz (2011) concludes that “input exposure has a significant influence on proficiency outcomes in an instructed setting, it means that time for learning is positively linked to successful learning” (p.129).

According to Larson-Hall (2008), the amount of input is correlated with age. She stated that early starters with 1600-2200 hours of input perform much higher than later ones and effective learning results from experiencing a special amount of language input for early starters. She states that an early start on the morphosyntactic abilities can be advantageous only after receiving a specific amount of input. She proposes 6-8 hours of instruction a week if 44 weeks in 6 years is calculated. She concludes that early starting is only useful when a lot of exposure and input are provided at younger ages. She also states that when the amount of input increases, a more coherent language system can be formed which consequently can be effective in more efficient language learning.

Huttenlocher et al. (2002) tested the relationship between children’s differences and different kinds of language input and the effect of teacher’s language input on the child’s syntactic development. The speech of 4-year-old children and their teachers’ and parents’ performing ordinary activities and different tasks were tape recorded and video taped. The results show that the child’s syntax is highly related to the input variations; there is a critical relationship between the teacher’s and parents’ syntactic input and child’s syntactic growth and there is also a correlation between these differences and parents’ complexity of speech. As a result, they claim that input variety causes growth diversity: language development is related to the structure both in syntax and in the child’s mind; different parts of syntax are influenced by input differently: “... the greater the proportion of complex syntactic forms in the input, the higher the level of skill with these forms” (Huttenlocher et al. 2002, p.371). Otherwise, the child should experience more complex structures in order to be able to produce them.

Seliger (1983, as cited in Brown 1994) classifies learners into two categories: High Input Generators and Low Input Generators. High Input Generators are the ones who are good interactionists, (good at generating input from teachers, friends and the people around), whereas Low Input Generators are those who are called passive learners and are not so careful or quick at getting direct input. Meanwhile, the conditions of L2 exposure are essential factors that affect learning outcomes, both in a naturalistic environment or a foreign language classroom (Howard 2011). The input exposure condition in both contexts vary “...in terms of the learners’ scope of access to the L2 input and the opportunities for interaction, giving rise to differences in the type and quantity of input available to the learner, as well as in terms of differences in intensity, quality, duration and frequency of exposure” (Howard 2011, p.71).

Borovsky (2008) studied the effect of ‘sentential complexity, frequency distribution of words and the amount of input’ in various environments on the learner’s ability of word learning and the formation of semantic knowledge. The participants were 26 English native speakers aged between 18 and 25 who did not start learning English until age 12. The effect

of the long-term language input on vocabulary learning and instant sentential context was examined. She specifies that there is “a significant relationship between semantic development and total amount of input to which a neural network is exposed.” (p.193). She concludes that the structure, amount and frequency of input affect lexical acquisition, so changing any of these categories is correlated with word learning progress, vocabulary learning is connected with semantic development and, linguistic experience and semantic development are closely interrelated. According to Borovsky, those participants with earlier input exposure are better learners not just because of better experiences in language learning, but because “the underlying cognitive mechanisms involved in word learning have changed as a result of that input” (p.197). The positive effect of input and frequency on lexical acquisition is also emphasised.

Long (1980) compared the features of conversational interaction and language input relation between native-to-native and native-to-nonnative speakers. He studied the frequency of specific linguistic items in the input of these two groups, the appearance of the instructed input in earlier ages and its use in the later output. Forty eight English native speakers and sixteen non-natives were divided into 32 dyads and were tested on different tasks. He points out that the innate power of language learning decreases by age and input influences the order of occurrence of some structures in the speech of the L2 learners. He also claims that the frequency of their occurrence is correlated with second language acquisition orders. The results show that the input used by native speakers while talking to non-natives is linguistically simplified and easier structures are used with the purpose of communication. Besides, he mentions that frequency of some linguistic items in native speaker’s input is correlated with their occurrence in the nonnative speaker’s output.

Regarding the results of the above mentioned studies, in order to see whether instruction time in a foreign language setting like Iran influences successful grammatical learning (Munoz 2011), or whether an early start accompanied by a lot of input exposure leads to better morphosyntactic performance in an EFL setting (Larson-Hall 2008), the main concern of this research is finding out how relevant linguistic input, in the form of length of time, is to the grammatical performance of EFL learners. In addition, the results of this study would fill the gap in the literature regarding the role of formal learning time in the morphosyntactic learning of the EFL learners.

### THE ROLE OF AGE IN LANGUAGE LEARNING

For a long time the influence of age on the language learning process (L1, L2 or FL) has been under investigation by different researchers from various perspectives. It is claimed that learning L1 is under the influence of age (Johnstone 2002), that is, if L1 learning does not happen before puberty, it will not happen anymore. Theoretically, most of the debates about the influence of age in second language learning is based on supporting or rejecting the existence of an influential period in early childhood, the Critical Period (CP), which some researchers believe can enhance either the L1 or L2 learning process.

First proposed by Penfield and Roberts (1959) and later studied by Lenneberg (1967), the Critical Period Hypothesis (henceforth, CPH) states that language learning can be processed more easily before puberty because of the plasticity of the brain at that time. As the child grows, the brain loses its plasticity, which can be influential in language learning. According to Nikolov and Djigunovic (2006 p.235), “the CPH claims that natural language acquisition is available to young children, but it is limited in older adolescents and adults.”, which is caused by the left hemisphere localisation that occurs after puberty.

The influence of the CP on various skills and linguistic factors at different ages, levels and areas of knowledge have been studied and the results have caused disagreement among

researchers and linguists (Huang 2009, Johnson & Newport 1989, Dekeyser et al. 2008, Flege, Yein-Komshian & Liu 1999, Nikolov & Djigunovic 2006, Johstone 2002). Bettoni-Techio (2008) states that, according to Lenneberg (1967) the beginning of lateralisation (age two) is introduced as the onset for learning and the offset would be the end of lateralisation (puberty); though she points out that there is no fixed agreement on the onset and offset of language acquisition, it is mostly agreed that puberty is the offset. Perani et al. (1998) points out that age is a very important factor in the process of L2 learning and other researchers (Johnson and Newport 1989, Flege, Yein-Komshian & Liu 1999) agree that late starters are less proficient than early ones.

In another study, Singleton (2001) found that before the age of 7, native-like level of proficiency could be gained, but between the ages of 7 to 15, the proficiency level would decline. Considering the idea of ‘the younger, the better’, Dimroth (2008) mentions if early start can be an influential factor in gaining language proficiency, then starting at lower levels in primary schools can increase better attainment in the language acquisition/learning process.

Larson-Hall (2008) studied the advantages of starting learning English at a younger age in a grammaticality judgment test on Japanese learners. Early starters began learning when they were 9 or older, compared to late starters who began studying English in junior high school at 12. Earlier starters did better in the grammaticality judgment test when the amount of input was also included as an important factor. In addition, early starters were also better at the phonemic discrimination task. She mentions a larger amount of total input can be the reason that the results of this study is different from the previous ones. She concludes that early starting age can be advantageous only if individuals acquire a significant amount of input.

The age effect in language learning has also been studied from the viewpoint of other researchers who disagree about the positive influence of early starting age on language learning. In one of the studies, Munoz (2003, as cited in Larson-Hall 2008) examined the subjects who started learning L2 at either ages 8 or 11. The participants were studying in a minimal input situation and were tested at ages 13 and 15 after 200 hours of school exposure. Grammaticality Judgment, phonemic discrimination, oral production and perception tests were used and there were no advantages for earlier starters, not even in one task. Attitudes and motivations were the only advantageous parts for early starters.

Bialystok and Hakuta (1999) emphasise that starting learning age has a relationship with the ultimate attainment of the target language. They claim that there may be a relation between final attainment and the early start, but “... it does not necessarily follow that age is a causal factor in that relation” (1999 p.162). From their viewpoint, if there is a critical period for language acquisition, then there would be a critical period for everything we learn, for example music and sports. They come to this conclusion that older learners transfer from the first language more than younger ones and late learners can gain native-like attainment in the process of L2 learning and though they are generally worse in mastering a second language, they can perform on various measures and tasks as well as early starters. Bialystok and Hakuta (1999) clearly reject the existence of a critical period for learning a second language.

Slabakova (2006) studied the effect of critical period on semantics. She states that various domains of linguistic knowledge, such as phonology, syntax and semantics are influenced by critical period differently. Based on recent advances, she argues when “learners at different AOA [age of acquisition] are scanned, a lower AOA (around 3 years of age) brings qualitative difference in the processing of syntax while a much higher AOA (over 16) produces such differences in the processing of semantics” (p.331). She concludes that critical period has no effects on semantics. Frediani (2008) studied the effect of the age of onset and the amount of instruction on EFL learners’ proficiency in Argentina. 7 to 8 year olds were

compared with 12 to 13 year olds. Considering the instructional time, the study shows that though late starters had fewer instruction hours, their cognitive maturity helped them to overcome the problems in language learning.

It is important for course planners and educators in EFL settings to understand whether an early start would benefit learners, or whether cognitive maturity would help language learners in the learning process, no matter what age they start learning. This specifically matters in a language learning context like Iran, where different language learning syllabuses in the two school types (public and private) results in the formation of a community of English language learners with different amounts of exposure and starting age. Thus, another objective of this study is specifying the effect of age in the grammatical performance of the EFL learners.

## METHODS

### PARTICIPANTS

Four groups of 17 year old Iranian female learners who were in their final year of high school were chosen. Each group had 30 students with different backgrounds of linguistic exposure: group A were public school students (with 792 teaching hours) and group B were private school students (with 1272 teaching hours), while participants in groups C and D were public and private school students respectively who had extra linguistic exposure through language classes (see Table 1). The curriculum, educational planning, textbook development, financing, teacher training, examinations and grading in both school types are all supervised by the Iranian Ministry of Education and Training. Education in public schools and public universities is free, private schools and private universities on the other hand, are financed primarily through their students' tuition fees. However, private schools and private universities must conform to the regulations set by the Iranian Ministry of Education and Training.

TABLE 1. Group explanation of the participants' Formal Learning Time

Groups	Exposure Type	Age of first school exposure	Years of exposure	No. of hours
A	Public school students	11	7	792
B	Private school students	8	11	1272
C	Public school students + Language institute exposure	11	7+	792+
D	Private school students + Language institute exposure	8	11+	1272+

### INSTRUMENTS

A demographic questionnaire and a Grammaticality Judgement Task were used to test participants' grammatical knowledge. The questionnaire was designed to seek information with regard to the students' background, including if they have an early exposure to English. This questionnaire was developed by the researcher to calculate the total number of hours and years of exposure to the English language in the class and outside the classrooms. The Grammaticality Judgment Task (GJT) was a version of Johnson and Newport's (1989) test which was revised by Dekeyser (2000). The task was designed to test eleven morphosyntactic structures. The eleven items presented in the task are shown below:

third-person singular	Every Friday our neighbour wash her car
plurals	Many house were destroyed by the flood last week.
determiners	The boy is helping the man build house
present progressive	The children playing in the garden till dark these days.
past tense	Last night the old lady die in her sleep.
particle movement	The man looked the new cars yesterday over.
subcategorisation	The girls enjoy to watch TV.
pronominalisation	A snake bit she on the leg.
yes/no questions	Has been the king served his dinner?
wh-questions	Where Ted is working this summer?
word-order	All our friends in this street live.

The test was given to the participants in written form. For every correct response to the sentences, 1 point was awarded and the total number of correct responses specifies the score of each participant.

### DATA COLLECTION

The data were collected sequentially in the classrooms. The participants answered the questionnaire first in one session before doing the GJT in the next session. In the second session, participants were told to read each sentence silently and judge the grammaticality of each sentence by putting a  $\surd$  (tick), for the grammatical perceived sentences, or an X (cross), for the ungrammatical sentences, on the box provided. They were also asked to change the ungrammatical sentence into the grammatical form only by correcting the ungrammatical part of the sentence. The ungrammatical sentences (*Mary looked at the flowers, but didn't buy.*) were formed by the elimination of a required word or morpheme, which could change the ungrammatical sentence into a grammatical sentence by moving, adding or removing one/some words. The correct grammatical sentence, for example, would be *Mary looked at the flowers, but didn't buy them.*

### DATA ANALYSIS

A 2 X 2 between-group analysis of covariance was conducted to assess the effectiveness of the formal learning time on the grammatical performance of participants with various degrees of exposure. The independent variables were 'school type' (public/private) and 'institute exposure' (with/without exposure). The dependent variable was 'score' on the Grammaticality Judgment Task (GJT). Formal Institute Hour (FIH) was used as a covariate to control for individual differences. To control for the fact that participants in groups C and D had unequal amounts of institute exposure (i.e., each participant attended institute classes for different length of time), covariance was used. In this way, the differences in the number of hours of studying English among those attending language institutes is controlled. An alpha level of .05 was used for all analyses.

The results of the two-way ANCOVA revealed that there was no significant interaction effect [ $F(1,115) = .068$ ,  $p < .05$ ] with a small effect size ( $\eta_p^2 = .001$ ). Both of the main effects were statistically significant [school type:  $F(1,115) = 12.65$ ,  $p = .001$ ; institute exposure:  $F(1,115) = 40.60$ ,  $p = .000$ ] (see Table 2). The Partial Eta Squared ( $\eta_p^2 = .048$ ) shows that approximately 50% of the learners' grammatical performance can be accounted for by the independent variable which is a big difference and implies that covariate has a significant impact on the difference in the means. The results also reveal that private school students are generally better grammatical learners even without the effect of FIH. Studying the confidence

interval between both variables also indicate that by 95% confidence, it can be claimed that there is always a difference of at least 3 scores between public and private school students, while a difference of at least 14 is reported for attending or not attending institute classes.

TABLE 2. The results of two-way ANCOVA: Tests of Between-Subjects Effects

Source	df	Mean Square	F	Sig.	Partial Eta Squared
School type	1	1415.40	12.65	.001	.099
Institution	1	4542.16	40.60	.000	.261
School type * institution	1	7.57	.06	.795	.001
FIH	1	652.32	5.83	.017	.048

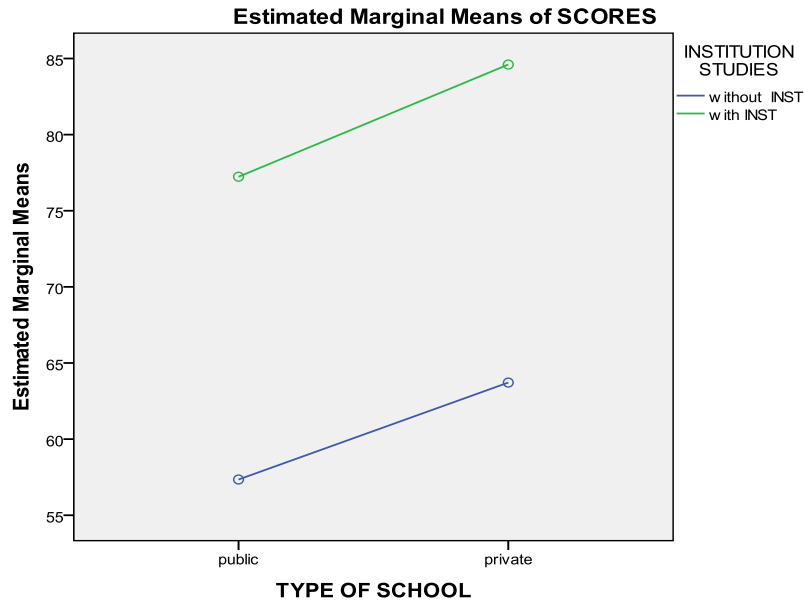
a. R Squared = .643, (Adjusted R Squared = .631)

As Table 2 shows the value for school type is .09, which, according to the generally accepted criteria (Cohen 1988), it is considered quite a small effect. This represents that only 10 percent of the variance in scores is explained by school exposure (i.e., FSH); while the value of institute exposure is .26 which is considered a large effect; it represents 26 percent of the variance in the scores is explained by institute exposure (i.e., FIH). Follow up tests were conducted to evaluate pairwise differences among the adjusted means. The Bonferroni procedure was used to control for Type 1 error across the pairwise comparisons. The results showed that students who studied at private schools ( $M=74.16$ ) and also those who had institute exposure ( $M=80.91$ ) had significantly higher scores than students who studied at public school ( $M= 67.29$ ) and those without institute exposure ( $M=60.53$ ). Table 3 shows the results of the pairwise comparison.

TABLE 3. Pairwise comparisons between independent variables

Dependent variable	Independent variable	Mean differences	Sig.
Scores	Public and private	6.89*	.001
	With and without institute	20.38*	.000





Covariates appearing in the model are evaluated at the following values: Formal Institution Hour = 351.67

FIGURE 1. Studying the interaction between time variables

A look at the interaction graphically (Figure 1) shows that since the lines used to connect the conditions are parallel, an interaction is absent and there was no interaction between the two time variables.

To find out whether a younger starting age can be advantageous in a foreign language setting when input is limitedly provided in formal classes, the participants were categorised according to the frequency of their exposure time. They were chosen based on the starting age of learning English and were categorised into four groups: group 1) 9 and less; group 2) 10; group 3) 11; and group 4) 12. See group categorisations in Table 4.

TABLE 4. Age categorisation

Group	Initial age	Frequency
1	9 and less	17
2	10	17
3	11	20
4	12	66
Total		120

A One-way Analysis of Variance (ANOVA) was then used to examine the question of whether participants with different starting ages differ with respect to their grammatical performance. The independent variable represented the different initial age groups (1, 2, 3 and 4) and the dependent variable was the score on the GJT with a range of 27 (lowest score) to 110 (highest score). Table 5 presents the means and standard deviations of each of the four groups.

TABLE 5. Mean and Standard Deviation of GJT scores by initial age

Initial age	N	Mean	Std. Deviation
9 or less	17	92.47	7.74
10	17	82.24	10.28
11	20	80.45	5.40
12	66	59.21	13.54
total	120	70.73	17.40

Since the number of participants in each group was unequal and the *Levene's F* test revealed that the homogeneity of variance assumption was not met ( $p = .010$ ), instead of the one-way ANOVA, the *Welch's F* test was used. The one-way ANOVA of the scores on the measure of social extroversion revealed a statistically significant main effect, (*Welch's F* (3, 43.51) = 62.49,  $p = .000$ ), indicating that not all initial age groups had the same average score on the measure of grammatical scores.

Since *Welch's F* test is used, then for interpreting the result, an adjusted squared formula was used:

$$est. \eta^2 = \frac{df(F-1)}{df(F-1)+N} = \frac{3(62.495-1)}{3(62.495-1)+120} = 0.605$$

The estimated omega squared ( $\omega^2 = .60$ ) indicated that approximately 60% of the total variation in average score on students' measure of grammatical learning is attributable to differences between the four starting age groups.

Since the homogeneity of variance assumption was not met, Tamhane post hoc procedure was conducted to determine which pairs of the four starting age means differed significantly. These results, given in Table 6, indicate that students who started learning English at age 9 and less ( $M = 92.47$ ,  $SD = 7.74$ ) had a significantly higher average score on the measure of grammatical learning than all the other three groups: students who started learning English at age 12 ( $M = 59.21$ ,  $SD = 13.54$ ) as well as students who started at age 10 ( $M = 82.24$ ,  $SD = 10.28$ ) and those who started at age 11 ( $M = 80.45$ ,  $SD = 5.40$ ). However, there was no significant difference between those starting at age 10 (i.e., group 2) and 11 (i.e., group 3). Otherwise, all groups were significantly different except for groups 2 and 3 (i.e., 10 and 11-year-olds).

TABLE 6. The results of Tamhane post hoc analysis

Dependent variable	Age groups	Mean differences	Sig.
Scores	1 and 2	10.23*	.016
	1 and 3	12.02*	.000
	1 and 4	33.25*	.000
	2 and 3	1.78	.989
	2 and 4	23.02*	.000
	3 and 4	21.23*	.000

The following figure (Figure 2) shows the mean plots between the four groups.

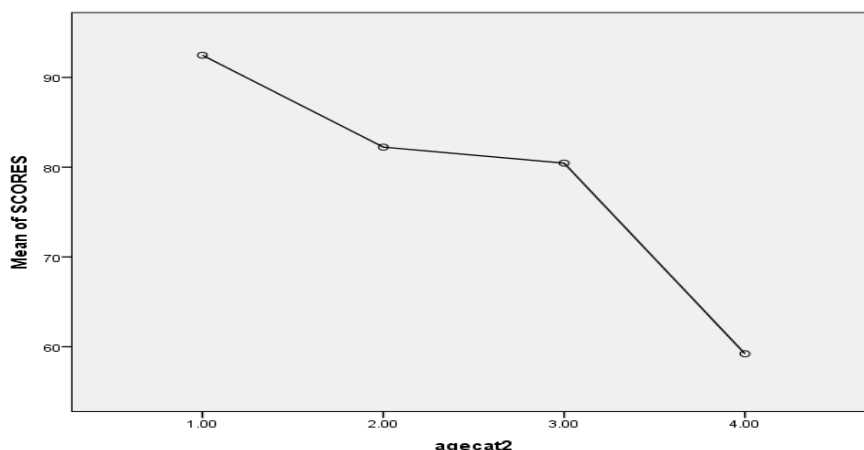


FIGURE 1. The mean plot between the four age groups

As shown in Figure 2, the participants' scores decreased with the increase of age.

## DISCUSSION

The results showed that there is a significant difference between both school type and institute exposure. Private school students outperformed public school students and those with language institute exposure had better scores than those who did not attend language institute classes. In addition, the effect of institution exposure was much more than school type. School type affected learners' score, while studying at language institutions caused a much greater difference among both public and private students; its effect is two times more in institution exposure. School type affects learners' score, while studying at language institutions causes a much greater difference among both public and private students; its effect is 2.5 times more in institute exposure.

Studying the interaction effect between the variables show that, statistically, there was no significant interaction between the school type and institution exposure. The behavior of the students in both systems (public or private schools) is the same: the same behavior is observed in both types of schools. No interaction conveys the concept that the effects of a change in one variable do not depend on the level or value of the other variable meaning that each variable has its own positive effect on the learners' performance. The more time they spent on language learning both in school or in language institutes, better performance of the learners was achieved; those participants who had studied both at private schools and experienced institute exposure outperformed all the other participants.

The findings are consistent with Larson-Hall (2008) finding significant differences between early and late starter groups on the Grammaticality Judgement task, when the total hours of input was considered as a control variable. The results of this study are also in line with previous research carried out by Munoz (2011) on finding the positive link between learning time and successful learning in EFL settings. Munoz claims that spending longer periods of time in instructed settings results in better achievement. This idea is supported by the findings of this study.

Previous research (Borovsky 2008, Heidari-Shahreza 2014) show that linguistic experience is correlated with semantic development and frequency of encountering L2 words, positively affects lexical acquisition: learners become more successful with vocabulary acquisition. Based on the results of this study, it can be claimed that grammatical learning is

influenced by the length of time. In addition, according to the results, length of formal learning time can be defined as one of the factors which distinguishes learners as high or low generators (Seliger 1983, as cited in Brown 1994). Learners with longer input exposure (in this study private school students with extra institute classes, i.e., Group D) can be called *high input generators*, while *low input generators* would be the those learners with short input exposure (that would be public school students, i.e., Group A).

Investigating the role of age in the grammatical performance of the participants showed significant differences between groups and estimated omega squared indicates that 60% of the total variation among the participants is controlled by starting age. Thus, according to the current sample, it can be claimed that age factor can be influential in the grammatical learning process. The younger the learners started learning English, the higher their scores in the Grammaticality Judgement Test were. Studying the present population showed that the best starting age for learning grammatical structures in a foreign language setting like Iran, is 9 and younger. The obtained results support the results of previous research emphasising the advantage of an early starting age in an instructed setting (Larson-Hall 2008, Dimroth 2008, Perani et al. 1998, Huang 2009, Flege, Yein-Komshian & Liu 1999, Bettoni-Techio 2008, Singleton 2001). The results are contrary to previous research that rejected the effect of a Critical Period and claimed that late starters had better performance (Frediani 2008, Bialystok and Hakuta 1999, Slabakova 2006). Frediani (2008) states that late starters could outperform early starters with the help of cognitive maturity.

This study was conducted to determine whether length of formal learning time and starting age affect grammatical learning in an EFL setting. The results show that length of formal class time is an effective factor in grammatical learning and age seems to play a positive role in a foreign language setting. The fact that learners with longer class exposure had better performance implies that formal class time plays a pivotal role in a foreign language context, thus by expanding the formal teaching hours at schools, grammatical abilities can be enhanced. Learning a foreign language at a younger age also seems to be helpful in improving the grammatical performance of foreign language learners. Learning English for longer periods and starting at a younger age may result in other factors other than better grammatical performance which is not tested in this study. Course planners and language instructors should pay more attention to the linguistic exposure in formal class time. Considering time advantage, new curriculums for teaching English at different levels at school can be designed. Studying the effects of formal learning time on other variables, such as vocabulary learning, native-like pronunciation, speaking, reading and writing abilities can be the subjects for further research.

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