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The Age Factor in Second Language Acquisition

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Introduction

This paper focuses on the age factor in relation to second language acquisition. It consists of six main sections: Section 1) introduces individual differences in general, then the focus turns into the age factor. Section 2) looks at learners' learning style. Section 3) introduces the age effect on rate of second language acquisition. Section 4) looks at the age effect on the acquisition of native-like proficiency. Section 5) describes the age effect on learners' second language achievement. Lastly, Section 6) looks at some general views of the age effect on second language acquisition.

1) Individual Differences; Age Factor

The age factor arguably belongs among the Individual Differences (ID) that researchers claim influence second language learning. The problem with ID is the difficulty of defining the variables involved. Ellis (1994) for example summarises the contributions of three researchers, Altman (1980), Skehan (1989) and Larsen-Freeman and Long (1991) to show the vagueness of the classification of ID and their overlap. Hence it is difficult to arrive at a coherent overall picture of ID. Ellis (1994) broadly divides such variables into three main types. His first main type is learners' beliefs about language learning. Horwitz (1983) and Wenden (1987) (cited in Ellis, 1994) suggest that learners have strong pre-conceived ideas about such issues as the importance of language aptitude, the nature of

language learning, and the strategies that work best. The second main type of variable, Ellis argues, is affective states. Bailey (1983) (cited in Ellis, 1994), for example, believes that some learners are fearful of starting to learn a second language, while others are more confident. Some develop anxiety as a result of their competitive natures and their perceptions of whether or not they are progressing.

The third type of variable is various general factors which include age. These constitute major areas of influence on learning and can be ranged along a continuum according to how mutable they are. For example, language aptitude is generally considered a stable factor, not readily influenced by the environment (Carroll 1981), while certain types of motivation are likely to change as a result of the learners' learning experiences (Berwick & Ross, 1989; Crookes & Schmidt, 1991). The general factors also vary according to the extent of the learners' control over them. For example, learners can do nothing about their age, but they may be able to change their learning style (Thomas & Harri-Augsten, 1990). Ellis (1994) argues that learners' beliefs and affective states, and general factors are interrelated. For example learners' beliefs and their affective responses to learning situations may be influenced by personality variables; he further argues that one of the goals of ID research is to identify the nature of these interrelationships. Although the variables in ID are said to be related in complex ways to language learning outcome, relatively few studies have been done relating to the age factor in particular. The only exception is learning style which we need to develop before going into more detail on age factors itself.

2) Learners' Learning Style

Keefe (1979) sees the notion of learning style as deriving from learners' psychological behaviours that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment. Willing (1987) agrees that the learning style

reflects 'the totality of psychological functioning'. In the area of cognitive psychology a number of learning style distinctions have been made. For example, Bruner, Goodnow and Austin (1959) distinguish 'focusers' and 'scanners'. 'Focusers' are those who tackle a problem by concentrating on one feature at a time, and 'scanners' are those who deal with several features at a time. Pask & Scott (1972) distinguish 'serialists' and 'holists', according to whether learners operate with simple or complex hypotheses. Other distinctions are based on learners' personality as much as learning style differences. Such distinctions include 'impulsive' and 'reflective' thinkers, 'divergent' and 'convergent' thinkers and so on. However, regarding second language acquisition, only field independence (FI) and field dependence (FD) have attracted attention. In Table 1 Ellis (1994) summarises some possible variables to be categorised as FI and FD.

Table 1
Variables Associated with Field Independence and Field Dependence

Field Independence	Field Dependence
adolescents/adults	children
males	females
object-oriented job	people-oriented jobs
urban, technological societies	rural, agrarian societies
free social structures	rigid social structures
individualistic people	group-centred people

(Taken from Ellis, 1994)

According to Witkin, Oltman, Raskin and Karp (1971), in FI people's mode of perception is strongly dominated by the overall organization of the surrounding field, while in FD people's mode of perceiving, parts of the field are experienced, as distinct from organized ground. A considerable number of studies have investigated the relationship between

FI/FD and second language learning. Along with variables such as learners' sex, personality, social environment and social structure, learners' age has also played a part in FI/FD differences. That is to say, that adults and adolescents are FI learners and children are FD learners, as seen in Table 1 (Ellis, 1994). One hypothesis of the characteristics of FI learners is that in a formal second language learning environment, they show a better performance, while FD learners do better in an informal environment.

Interestingly this hypothesis corresponds with the evidence of age advantage which will be introduced in a later section in this chapter. Roughly speaking, evidence from studies on the age factor shows that in an environment such as a classroom where formal language instruction is given, adult learners perform better than children (Asher & Price, 1967). On the other hand, in a natural language learning environment, such as immigrants in a host country, children perform better than adults and adolescents (Asher & Garcia, 1969, Oyama, 1976).

However, there is some doubt in the analysis between FI/FD and second language outcome. For example, D'Anglejan & Renaud (1985) report that FI explained less than 1 percent of the variance in tests of all four language skills. They also found a considerable overlap between FI/FD and verbal intelligence.

Another hypothesis of FI/FD differences, which did not receive convincing support from the research carried out to date, is that FD learners (in this case adult learners) will interact more and seek out more contact with other users of the second language. Seliger (1977) found that FI learners (in this case children) interacted more in the classroom. He argues that this was because they were not reliant on the approval of others, and were therefore more prepared to take risks, but his results could also be interpreted as contradicting the hypothesis that FD learners will interact more. Day (1984) found no relationship whatsoever between FI/FD and participation. Carter (1988) reports that FI learners are more concerned with meaning than FD learners, which also works against the hypothesis.

The research into FI/FD has shed little light on the relationship between cognitive style and second language learning. Although adults and children are categorised as FI and FD

respectively, it is not clear how the actual age difference affects second language learning. Also relatively few studies have been done on the relationship between age and FI/FD, especially to investigate whether children being FD and adults being FI applies to learning both L1 and L2.

There are other approaches to investigate learning style in second language learners. For example, Reid (1987) distinguishes four perceptual learning modalities such as visual learning, auditory learning, kinaesthetic learning and tactile learning. Willing (1987) also presents four learning styles used by ESL learners, that is to say, concrete learning style, analytical learning style, communicative learning style and auditory-oriented learning style. However since none such studies actually focuses the relationship between learning style and the age factor, they are not going to be introduced further.

On the whole, at present few general conclusions that can be drawn from the research on learning style itself. Therefore it is naturally difficult to relate the age factor to it. Learners clearly differ enormously in their preferred approach to second language learning, but it is impossible to say which learning style works best for different age groups. Quite possibly learners who display flexibility are most successful, but there is no real evidence for such a conclusion yet. One of the problems is that the concept of 'learning style' is ill-defined, apparently overlapping with other individual differences of both an affective and a cognitive nature. It is unlikely that much progress will be made until researchers know more clearly what it is they want to measure.

In the later section of this chapter, the topic will focus on the age factor itself. Since there is little relationship found when looking at age as a relating factor to the other individual differences from a general point of view, it is important to investigate how age plays its role on learners' second language acquisition.

But first, we will look at the different points of view about how age affects learners' second language acquisition.

3) The Age effect on Rate of Second Language Acquisition

When the age effect on second language acquisition is discussed, there has been a trend to distinguish rate of acquisition from attainment. For example, Krashen, Scarcella and Long (1979) suggested that the speed of second language acquisition at an early stage and long term attainment should be treated separately. If such a distinction was made, it can be said that older learners, including adolescents, are much faster learners than children at an early stage of second language learning, and children are better than the older learners in long term attainment. In other words children may not be fast learners, but they may be better achievers in the end, while adults do not achieve such high proficiency. Krashen, Scarcella & Long (1979) further argue that at the initial stage of second language learning, adolescents learn more rapidly than younger children.

Furthermore, Snow & Hoefnagel-Hoehle (1978) cite the above study to support their own finding of adolescents being best at the initial stage of second language learning. With regard to morphology and syntax the adolescents did best, followed by adults, with children last. However, there were only small differences in pronunciation and grammar, and the differences diminish over time as the children began to catch up. An experiment by Olsen & Samuels (1973) also found adults performing significantly better than children on German pronunciation.

However, other research suggests that, at least where pronunciation is concerned, adults do not always progress more rapidly than children. One such study is that of Cochrane (1980) which investigated the ability of Japanese children and adults to distinguish English /l/ and /r/ sounds. Both groups of subjects had naturalistic exposure to the sounds, but in the case of children the exposure was a relatively small amount of 193 hours, compared with 245 hours for adults. Yet children still outperformed adults. In a subsequent experiment, both groups were given the same amount of formal instruction on the

phonemic distinctions of the sounds before they were tested. In this case adults outperformed children.

The above evidence appears to be more applicable to grammar than pronunciation, where children seem to learn more rapidly than adults, although in the case of formal learning situations adults seem to do better even in this area of learning. Thus, to summarise, when time and exposure to a second language is controlled, adults and adolescents generally make faster initial progress than children, and older children progress faster than younger children particularly in acquiring morphological and, lexical aspects of the second language and sometimes, in acquiring phonological aspects as well. This has been the case especially when the exposure takes place in a formal environment such as a classroom. These rate-advantages can be short lived and they may last only a few months for some aspects of performance Snow and Hoefnagel-Hohle, 1978).

4) The Age Effect on the Acquisition of Native-like Proficiency

One may wonder whether native-like pronunciation or native accent should be considered to be an important factor in second language acquisition. For example Hill (1970) points out that in places like South India, where English is spoken as well as the local languages using similar phonetic systems, the distinction between native and non-native accents may not be at all straightforward. Cook (1995) also suggests that accent is the least important aspect of second language proficiency and that older learners who fail to achieve a native-like accent lose little or nothing. However, Singleton (1995) argues that common experience indicates that a poor accent can cause a breakdown in communication, and that even in less extreme cases it can induce a native speaker to switch off during conversations and/or actually seek to avoid further interactions with the learner in question. This notion directly links to the research of this thesis, as we shall see.

The issue of achieving native-like proficiency has been a controversy when the role of age is considered. The question is crucial to the Critical Period Hypothesis. The study of

Neufeld (1978) is often cited in this area to establish whether adults are able to achieve native-like proficiency. His subjects were adult English speakers, and after intensive training they were tested for their native-like pronunciation (imitation skills) in Japanese and Chinese, using a five-point scale indicating from 'unmistakably native' to 'heavily accented'. The result suggests that under the right circumstances adult learners can achieve native-like pronunciation, which is considered to be the most difficult area of second language acquisition for adults. However his research has been criticised by the supporters of the Critical Period Hypothesis such as Long (1990) as irrelevant. Long, for example, argues that the judges whom Neufeld used had been informed that the data they were going to examine was produced by native speakers of Japanese and Chinese, although the data itself was unnaturally produced imitation after intensive training, which did not represent the subjects' real proficiency in the second languages. While such criticism is legitimate, it does not refute the essential claim that Neufeld seeks to make, namely that it is possible for adults to achieve a native-like level of proficiency in their second language.

On the other hand, Coppieters (1987) provides evidence to support the Critical Period Hypothesis in achieving native-like proficiency. He tested 21 adult French speakers to investigate their performance in grammatical judgement tasks in English. Coppieters notes that it was not possible to distinguish the two groups by the mistakes they made, their choice of lexis, or grammatical construction, and six of the subjects were also described as having no trace of a foreign accent. However the results of the grammaticality judgement test showed clear differences between the groups, suggesting that despite the native-like performance of the learners in language production, their grammatical competence differed from that of native speakers.

On the contrary Birdsong (1992) found no difference in the way adult non-native speakers of French and adult native-speakers performed in French grammaticality judgement tests. His aim was to challenge Long's (1990) argument 'whether the very best learners actually have native-like competence' (Long, 1990: 281), comparing English speaking subjects who had near-native level of oral proficiency in French with native speakers of French. A number of the non-native speakers performed in the same range as the native

speakers in the grammaticality judgement test. Furthermore Birdsong found no marked differences between the two groups in the think-aloud data that he collected from the subjects as they performed their judgements. Thus Birdsong suggests that at least some learners who start learning a second language after puberty achieve a level of competence indistinguishable from that of native speakers.

However, the studies that investigate learners' native-like pronunciation proficiency provide some evidence to support the Critical Period Hypothesis. Many of these studies investigate the cases of immigrants, as will be mentioned in the later section of this chapter (see 'children are the best learners' argument on). The more recent work by Thompson (1991) shows emphatically that early arrival in the host country helps learners achieve native-like proficiency in pronunciation. His results shows that those who arrived the United States before the age of ten had a more native-like English accent than those who arrived after this age. An interesting finding is that some subjects still retained Russian accents even though they had arrived in the host country before the age of ten. Thompson considers this a problem for the Critical Period Hypothesis, but speculates that the reasons why these subjects did not achieve a native-like level of proficiency were, (a) the large amount of Russian spoken in their living environment, and (b) some subjects wished to keep their Russian accents in order to be identified as Russians. Thompson's study is important not only because the result shows evidence in support of the Critical Period Hypothesis, but also because it suggests the need to consider age in relation to other factors, such as first language maintenance, that is to say, not all learners will wish to sound like native speakers.

The last evidence to prove the Critical Period Hypothesis in achieving native-like pronunciation proficiency is that of Scovel (1981 (b)), who compared four groups of subjects (the most advanced adult non-native speakers, adult native speakers, child native speakers and native adult aphasics). The subjects were required to rate speech samples and written pieces which were created by both non-native and native speakers of English. Scovel found that even the most advanced non-native subjects scored 77% correctly, which was close to the level of native child speakers with 73 %, while the adult native speakers score with 95%, and native adult aphasics with 85%.

After considering the evidence above, it is still not clear whether starting a second language at an early age will make it possible to achieve native-like proficiency. However, what can be summarised here is that under ideal circumstances it is possible for adults to achieve native-like proficiency in speech and writing. Whether qualitative differences in competence remain is still not clear as Coppieter's claims, although Birdsong suggests that at least some learners achieve native-like level of grammatical knowledge.

5) The Age Effect on Learners' Second Language Achievement

In the later section of this chapter, some evidence will be introduced, where the older children outperformed the younger children in the studies based on school curriculum (i.e. Tahta et al., 1981b, Politzer & Weiss, 1969, Ekstrand, 1978 (b) Dunkel & Pillet, 1962, Oller & Nagato, 1974, Burstall, 1975b, etc.). In this research the second language exposure is formal, being based on schools, and the age groups are controlled neatly according to the classes to which they belong. However, a confounding factor in the results is that some of the research does not take into account the length of exposure. At the point where the studies were carried out, those who had started the second language earlier had obviously had longer exposure than those who started later. Therefore it is still usual to use the immigrants' studies as support for the Critical Period Hypothesis.

6) Some General Views of The Age Effect on Second Language Acquisition

After seeing the evidence from different aspects of second language acquisition, some general comments about the Critical Period Hypothesis can now be made. Despite all the contradictory arguments, it is possible to conclude that:-

- a) In circumstances where formal exposure is given, adults learn faster than children. When children receive enough exposure in the second language, they catch up with adults.
- b) Only children are able to acquire a native-like proficiency in pronunciation. The age suggested for the critical period varies from one researcher to another from 6 to 10, and some argue that it is until puberty. However, some exceptions must be noted; Thompson (1991) suggests that there are those who do not acquire a native-like pronunciation even though they start a second language as early as the age of 4 because of first language maintenance and some other factors.
- c) With the assistance of instruction, adults may be able to acquire native-like pronunciation.
- d) The critical period for grammar may be later than that of pronunciation (around puberty). However, adults may also be able to succeed in achieving a native level of grammar accuracy in speech and writing.
- e) Irrespective of whether native-like proficiency is achieved, children are more likely to reach a higher level of attainment in both pronunciation and grammar than adults.
- f) There might be multiple critical periods for the different aspects of second language acquisition as Seliger (1978) argues.

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