Age and the Rate of Foreign Language Learning

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Introduction

The widespread belief that *the younger the better* in second language acquisition is partly grounded in informal observations of immigrants in natural settings, as well as in evidence from majority language children in school immersion settings from Canada to Catalonia. Certainly, empirical research in those contexts has shown that individuals who begin to learn a second language very early in life generally attain higher levels of proficiency than those who start at a later stage. However, an inferential leap is made in the assumption that learning age will have the same effect on students of a foreign language, when they are exposed to only one speaker of that language (the teacher, who is not usually a native speaker) in only one setting (the classroom) and only during very limited amounts of time. The neglect of environmental factors characteristic of nature-oriented perspectives has, no doubt, contributed to the playing down of differences between natural and formal language learning settings.

For those of us interested in second language acquisition in the classroom, such an inferential leap is a matter of concern, particularly when it exerts an influence on language-in-education planning policies. From this concern sprang the motivation to embark on a nine-year research project focused on the process of acquisition of a foreign language by learners with different starting ages. The necessary conditions for the research appeared naturally when a change in the school curriculum brought forward the introduction of foreign language instruction, and the old and the new curricula in fact coexisted over a number of years. These circumstances provided the impetus for the BAF (Barcelona Age Factor) Project, which has been the framework for multiple research directions on the various ways in which age affects the process and the product of second language learning in a school setting. Like other age-oriented studies, the BAF Project has examined the effects of the initial age of learning but, in contrast with the majority of studies, this project has also analysed the effects of age across the spectrum of the learning process. Because of its focus on the process of foreign language learning during a limited length of time, the BAF Project has been more concerned with the rate of learning than with ultimate attainment. Equally, due to its formal learning setting, the project has focused on the optimal levels that are realistically attainable through school education, rather than on unattainable native-likeness.

The chapters in this volume present selected results from the BAF Project. A number of them examine the evidence drawn from formal language

learning, in areas such as pronunciation or morphology, for confirmation of previous age-related findings in naturalistic language acquisition. Others explore aspects that have seldom been studied in relation to age differences, such as oral fluency, vocabulary, interactional skills or learning strategies. All of them have the twofold aim of contributing to the study of age-related effects in language learning, while at the same time contributing, empirically and sometimes also methodologically, to the study of a particular area of second language acquisition. Further distinguishing characteristics of these studies are their concern with research of low-proficiency learners in a foreign language setting and the learners' bilingual condition, which makes the findings relevant for the emerging area of third language acquisition.

In Chapter 1, "The Effects of Age on Foreign Language Learning: The BAF Project", Carmen Muñoz presents the project: its setting, research design and the materials used to elicit the samples of learner language and the learners' responses that are anaysed in the following chapters. The chapter then provides an overview of the results, which includes a comparison of the performance on a series of tests of two groups of subjects who were followed longitudinally, as well as a general comparison of all of the groups with a different initial age of learning. The discussion of the findings challenges the inferential leap mentioned above arguing that age intervenes in the process of second language learning in school settings in ways that differ from those observed in natural settings, in terms of both rate and of long-term attainment.

In the next chapter, "The Development of English (FL) Perception and Production Skills: Starting Age and Exposure Effects", Natalia Fullana analyses the influence of age of onset of foreign language learning and exposure on the acquisition of a foreign language phonology and argues that these factors are not conclusive determinants for perceiving and producing English sounds in a native-like manner in a formal language learning context. Late starting age tends to result in a somewhat better perception of English segments in the short and mid terms, but not in the long term, and the differences in production are never significant. The author suggests that the lack of any definite effects of starting age and exposure may be due to the limitations in quantity and quality of the input delivered in this type of formal language learning setting.

In Chapter 3, "Age Effects on Oral Fluency Development", Joan Carles Mora investigates age effects on the oral fluency of two groups of English as a foreign language (EFL) learners matched with respect to amount of second language exposure but differing in onset age of learning. The picture-elicited narratives produced by the two learner groups were analysed and evaluated according to a number of well-established quantitative oral fluency measures. In relation to these, the paper suggests that in the analysis of highly dysfluent non-native speech, speech rate may be a

more reliable oral fluency measure than pause frequency. The results of the comparison of the two learner groups reveal that late starters outperform early starters on most of the oral fluency measures used and support the view that an early start does not necessarily imply an advantage in the acquisition of a second language in the formal learning context.

In Chapter 4, "Age and Vocabulary Acquisition in EFL", Immaculada Miralpeix uses data from a variety of tasks to analyse vocabulary development in two groups of learners, one that started foreign language learning at 8 and the other that started at 11, when both learner groups had received 726 hours of instruction in English. The chapter provides findings in the area of lexical acquisition, which has not attracted much attention in age-related studies, and explores new ways to analyse lexical data from low-level students (e.g. the D measure). The results generally show differences in free and controlled productive vocabulary in favour of the late starting pupils. Other significant findings are of a methodological kind, including task effects and the relative advantages of different lexical measures in the study of second language lexical acquisition.

Chapter 5, "Accuracy Orders, Rate of Learning and Age in Morphological Acquisition" by Carmen Muñoz, analyses the use of a set of English morphological functors by children and adult learners of different proficiency levels. The study provides evidence against the existence of a qualitative difference in the way different-aged students progress in learning to use these forms accurately. It also reveals a superior rate of learning in older than in younger learners, particularly in the initial stages of language acquisition. The role of proficiency level and learning setting are discussed in relation to the comparison of the accuracy orders observed in this study with the average order of those functors shown by previous studies.

In her contribution, "Rate and Route of Acquisition in EFL Narrative Development at Different Ages", Esther Álvarez focuses on the narratives produced by children, adolescents and adults with the aim of outlining the order in which learners of different ages proceed in the use of a variety of linguistic elements in discourse. The author identifies nine developmental stages, in which the morphosyntactic and discourse components interact. A comparison of the learner groups in terms of their assignment to those stages reveals a rate advantage for older learners, which begins to fade when age differences diminish and with longer exposure to the target language.

Chapter 7, "Age and IL Development in Writing", by María Rosa Torras, Teresa Navés, María Luz Celaya and Carmen Pérez-Vidal, considers the issue of the development of EFL written competence as an effect of the interaction between age and instructional time: that is, whether and how the number of hours of instruction affects both the rate of acquisition and the pattern of development at different ages. Results show that an early start at 8 years of age does not involve higher levels of attainment at 16,

after 726 hours of instruction. The authors suggest that the amount of exposure to the target language after the age of 12 may be crucial in explaining the results obtained. The analysis of the profiles of development of both groups indicates that neither the domains analysed nor the variables included in them develop in tandem and that their rate of development seems to be affected by age.

The following three chapters deal with age-related differences that may impinge on the process of learning a foreign language. In Chapter 8, "Age, Proficiency Level and Interactional Skills: Evidence from Breakdowns in Production", Gisela Grañena focuses on learners' appeals for assistance during the completion of a picture-elicited narrative task. The aim of the study is threefold: to explore how learners of different ages and proficiency levels demonstrate a gap in their interlanguage when faced with a production breakdown during task-based interaction; to examine the type of input provided by the learners' interlocutor; and finally to investigate the occurrence of uptake as an indication of potential acquisition. Results suggest that older and more proficient learners elicit help in a more explicit manner and that the degree of explicitness of the learners' signal has an effect on their interlocutor's response. Age may also be an explaining factor of differences in the level of uptake among the more proficient learners.

In Chapter 9, "Reported Strategy Use and Age", Elsa Tragant and Mia Victori examine the use of language learning strategies by different groups of learners on the basis of their answers to a series of questions in a written questionnaire. The authors find significant variation in learners' use of strategies within and across three different data collection times. The study also follows a group of learners over an extended period of time and finds that learners tend to undergo developmental changes in strategy use as they increase in age, regardless of their level of proficiency or learning stage, although the changes are not always systematic. It is also suggested by the findings that students' reported use of strategies varies depending on the skill under investigation, which may indicate that their domains of perceived strategic knowledge may not develop homogeneously for all skills.

Finally in Chapter 10, "Language Learning Motivation and Age", Elsa Tragant reports on a study of the levels and types of motivation expressed by different-aged learners in their answers to a series of questions included in the students' written questionnaire. Motivation seems to be stronger among older students than among younger students, which may be due, according to the author, to the greater awareness of the role of English worldwide at more advanced ages. The finding that having students start learning English earlier does not significantly alter the level of motivation in students makes the author hypothesise that more drastic changes may be needed in the educational system to raise motivational levels. The types

of orientations identified in the study vary with learners' age: older students mention extrinsic types of orientation while students in primary school make more references to attitudes towards the learning situation, which may also explain the lower levels of motivation these students show.

The book is addressed to professionals and graduate students interested in the field of second language acquisition. It will also be of interest to language teachers, language planners and all of those aiming to improve the learning of foreign languages. The book will, hopefully, show them that introducing a foreign language earlier in the school does not automatically result in general higher levels of proficiency and that the conditions of the learning environment cannot be ignored.

Chapter 1

The Effects of Age on Foreign Language Learning: The BAF Project

CARMEN MUÑOZ

The idea that there is a critical age for language learning that finishes before puberty was popularised by the Canadian brain surgeons W. Penfield and L. Roberts in their book *Speech and Brain Mechanisms* (1959). Penfield enthusiastically defended an early start for second language learning, basing his ideas on his studies on brain damage and his experience with his own children. According to Penfield, the time to begin schooling in second languages was between the ages of 4 and 10. Theoretical support came soon from E. Lenneberg who, in his *Biological Foundations of Language* (1967), noted that the rapid growth of nerve connections, which ceases at puberty, coincides with the child's acquisition of language. Lenneberg supported his neurological account of the Critical Period Hypothesis (henceforth CPH) with evidence from aphasic patients, who showed a more rapid recovery if the damage had taken place before puberty, and with feral children, children who had suffered social isolation and had not learnt language before puberty. Their inability to learn language after that time, Lenneberg argued, constituted evidence that language acquisition was impossible after the critical period.

However, the extant evidence of language learning by feral children is so scarce that it cannot be used to provide strong support for either this or opposing views. The case of Genie, a girl who had lived in social isolation until the age of 13;7, proved that language acquisition was not impossible after puberty, though it seemed to be incomplete (see Curtiss, 1977). Linguistic evidence from the Genie case is still in need of clarification (Jones, 1995), and the regression she suffered after several traumatic events underlines the fact that the social and psychological circumstances of feral children cannot constitute valid evidence for a firm conclusion regarding the critical period for language acquisition. Likewise, the pathological kind of evidence provided by aphasic patients needs to be treated with caution. More relevant evidence has recently come from the field of the acquisition of sign language, which suggests that morphology and syntax may be affected by late acquisition in the case of deaf persons who are not exposed to their first language (sign language) until later childhood or adulthood (Newport, 1990).

From a theoretical point of view, the idea of a critical period sprang from an innatist conception of language, which the prevalence of Chomsky's proposals in the field of linguistics in the second half of the 20th century strongly reinforced. A biologically determined period for language acquisition fitted perfectly well in a theory that concedes a crucial role to biology in human linguistic competence. Recently, however, the field of child language acquisition seems to be drifting away from formal linguistics proposals, disappointed by their failure to explain how human children become skilled users of a natural language. Tomasello (2003) argues that one of the reasons for this failure lies in the continuity hypothesis, which attempts to explain children's language in terms of the structures and rules used to account for adult language. The best known theoretical alternatives to generative grammar at the moment, the connectionist accounts (e.g. Elman, 2001) and the construction-based (usage-based) accounts (see Tomasello, 2003), are both data based. In the latter perspective, one of the reasons underlying children's observed advantage in second language acquisition may be the fact that they are more flexible learners than adults in skilled activities.

The CPH and Second Language Acquisition

The study of second language acquisition originated from the field of first language acquisition, and has since been fed by hypotheses and theories first developed in the parent field. Among these, the hypothesis of the existence of a critical period for (first and second) language acquisition soon motivated a wealth of empirical studies in the 1970s. The work of that decade was summarised in the following three generalisations:

(1) Adults proceed through early stages of syntactic and morphological development faster than children (where time and exposure are held constant).

(2) Older children acquire faster than younger children (again, in early stages of syntactic and morphological development where time and exposure are held constant).

(3) Acquirers who begin natural exposure to second language during childhood generally achieve higher second language proficiency than those beginning as adults. (Krashen *et al*., 1979/1982, reprint: 161)

These generalisations led Krashen *et al*. (1979) to make a very important distinction between *ultimate attainment* and *rate*. Older learners have a superior learning rate, particularly in the first stages of the acquisition of morphosyntactic aspects, while younger learners are slower at first, but eventually show a higher level of ultimate attainment. The latter was held to constitute evidence for the existence of a critical

period, beyond which second language acquisition cannot reach native-like levels of proficiency.

Since then, a large number of studies have compared native-likeness among younger and older starters. The most robust evidence for the existence of maturational constraints in second language acquisition seemed to be provided by the study by Johnson and Newport (1989) of Korean and Chinese learners of English using grammaticality judgement tests (Long, 1990). Many other studies have also focused on the acquisition of second language (L2) morphosyntax (e.g. Coppieters, 1987; DeKeyser, 2000; Johnson & Newport, 1991; Patkowski, 1980; Schachter, 1996).

However, agreement is far from complete. Johnson and Newport's findings have been questioned on both methodological and empirical grounds (but see a recent confirmatory study in DeKeyser, 2000). Methodological criticisms can be found in Bialystok (1997), and Bialystok and Hakuta (1999). Replications of Johnson and Newport's (1989) seminal study have cast some doubt on the neurobiologically-based explanation of the younger learners' advantage. For example, replications have found evidence of native language effects (Birdsong & Molis, 2001; van Wuijtswinkel, 1994, cited in Kellerman, 1995) and of post-maturational age-related effects (Birdsong & Molis, 2001), which are held to constitute grounds for refutation of the CPH (Pulvermüller & Schumann, 1994).

Other studies have also found evidence of native-likeness among post-puberty starters, which appears to disprove the CPH in relation to L2 acquisition. Examples are, in the area of Universal Grammar principles, the work by Birdsong (1992; Birdsong & Molis, 2001), and White and Genesee (1996); in the areas of perceptual abilities, production skills and underlying linguistic competence, the report by Ioup *et al*. (1994); and in the area of pronunciation, Bongaerts *et al*. (1997), and Bongaerts (1999), among others.

On the other hand, evidence has accumulated that an early start does not always guarantee native-like achievement (see Harley & Wang, 1997). Hyltenstam and Abrahamsson (2000, 2003) claim that native-like proficiency in a second language is unattainable even for very early starters due to the strong influence that maturation has on second language outcomes. Further, these authors maintain that previous research has failed to find non-native features because they may be imperceptible except in detailed and systematic linguistic analyses, that is, the sort of analyses that should be undertaken with apparently exceptional late learners.

In sum, although an early starters' long-term advantage (for ultimate attainment) is recognised, the CPH itself does not seem to have unanimous support at present (see Birdsong (1999) for a review of the two positions). On the other hand, late starters' short-term advantage for learning rate was firmly established by Snow and Hoefnagel-Höhle's findings (1978). These researchers conducted a large study in a natural setting