

Bi-and Multilingualism

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Abstract

The terms bilingualism and multilingualism refer to the presence of two or more than two languages within an individual and within a society. This entry deals with individual bi- and multilingualism. It presents a number of dimensions along which individual bilinguals are classified and discusses the popular but also questioned idea that to ultimately command multiple languages at natively levels one should be exposed to them during a bounded period early in life. In addition, it presents the notion of language-nonselective activation in bilingual memory and discusses how bilingualism may affect the content of lexical concepts and various aspects of non-verbal cognition.

Main Text

Introduction

The terms *bilingualism* and *multilingualism* refer to both the presence of two or more languages in the minds of individual language users (*individual* bi- and multilingualism) and to the co-existence of two or more languages within a society (*societal* bi- and multilingualism, also often called *diglossia*). These different, though closely interrelated, manifestations of bi- and multilingualism are being studied by different communities of researchers. Cognitive psychologists, neurolinguists, and educators examine individual bi- and multilingualism whereas social psychologists, sociolinguists, sociologists, political scientists, and communication scientists are especially interested in societal bi- and multilingualism. This entry deals with individual bi- and multilingualism, focusing predominantly on bilingualism but with multilingualism generally implied. One reason for concentrating on bilingualism is that bilingual studies greatly outnumber those testing speakers of more than two languages. A second is that the mental processes and mechanisms involved in bilinguals' language use are unlikely to differ in any principled way from those operative in language use by speakers of more than two languages. Therefore, any insight gained from studies on individual bilingualism likely also applies to individual multilingualism. Finally, to be able to consider multilingual studies separately from bilingual ones it should be possible to clearly demarcate the two. However, drawing a neat line between bilingual and multilingual studies is no easy and straightforward undertaking because there is no consensus among researchers about what degree of expertise in a language must be attained for the extant linguistic knowledge to actually count as an additional language. Similarly, there is no agreement about what type of knowledge regarding a language must be mastered to be able to say that the language is known. Does it, for instance, suffice if phonology, vocabulary, and grammar are largely in place and can be operated on in concert so that fluent speech occurs, or can a language only be said to be mastered if its pragmatics is also well developed, if the language can be used appropriately and effectively in a great variety of naturalistic communicative settings? And what about the fact that, structurally, there are no clear demarcations between languages and dialects so that dialects must perhaps also be counted in as languages? An often cited adage, popularized by the late Russian

sociolinguist Max Weinreich, is that “a language is a dialect with an army and a navy” (translated from Yiddish), indicating that the linguistic systems called *languages* and *dialects* only differ in that the former are more prestigious than the latter because of social and political reasons. From the viewpoint of individual bilingualism/multilingualism, a dialect that is actually used should count as an additional language because it will inevitably influence how its speakers use their “proper” language(s), just as the latter unavoidably influence each other (see below). In conclusion, there is no agreement on what complex of linguistic knowledge counts as a language nor about what level of ability in using this knowledge is required for a user to pass for a real speaker of this language. Consequently, one and the same person may, for instance, be regarded a bilingual by some but a trilingual by others.

The study of individual bi- and multilingualism can be considered to largely be a branch of psycholinguistics, the field of research that examines the mental processes, memory representations, brain structures, and neural networks involved in language processing and how these are put into use during the comprehension and production of spoken and written language. In addition, psycholinguistics studies how language is acquired and how it relates to thought. Research into individual bi- and multilingualism deals with these same issues but addresses them from the perspective of bi- or multilingual first language (L1) learners (who grow up with more than one language from birth), learners of a second or foreign language (who speak an already partially or fully developed L1 before starting to learn the new language), and users of more than one language who have gained a sufficiently good level of proficiency in their languages to no longer be considered learners. The distinction between a second language, L2, and a foreign language is often made to refer to a second language that is the official and dominant language in the country where the learner resides, the majority language (L2 learning thus typically applies to immigrants and members of minority groups) and a second language that is not the majority language in the learner’s country of residence. But another common practice is to simply call both second languages, thus stressing the fact that both a second language (in the narrow sense of the word) and a foreign language chronologically follow L1 learning; that both are not the learners’ mother tongue.

Classifying bilinguals

If asked which people they would consider bilingual, members of the general public tend to exclusively think of simultaneous, balanced bilinguals, that is, individuals who were exposed to their two languages from birth and are equally proficient in both languages. In addition, the general public might expect bilinguals to master their languages to the same level as proficient monolingual native speakers of these languages. If bilingualism researchers would hold this same view about bilingualism, they would generally be confined to only conducting case studies including small numbers of participants because few individuals would meet the criteria for inclusion. In reality, the notion of bilingualism held by those professionally engaged in the phenomenon includes people who vary greatly in the level of proficiency exhibited in, especially, their weaker language and counts in persons who are fluent in only part of the various subskills involved in linguistic competence. For instance, the included participants may be good at reading in L2 and understanding spoken L2 but might lack fluency in producing L2 speech, or their L2 sentences may generally be grammatically correct but spoken with a noticeable speech accent or, conversely, sound perfectly native-like but contain grammatical flaws.

But even though there is much variety in linguistic ability among the bilingual population, a widely accepted criterion for being considered bilingual is that one should be able to effectively and appropriately use the linguistic knowledge concerning the languages in question in a wide range of, but not necessarily all, common communicative situations. This is sometimes called *functional bilingualism*. That inaccuracies in the use of, say, grammar or vocabulary occur, not only as performance errors but due to incomplete linguistic knowledge,

is perfectly permissible; communicative competence is more relevant than complete knowledge of both linguistic systems that cannot be put to proper use. Functional bilingualism can be attained along different learning trajectories. It is not only within reach of individuals who were exposed to two languages from the first day of life, learning their two languages concurrently (*simultaneous bilingualism*), but also for those who only started to learn a second or foreign language, through immersion learning or formal learning at school, when the L1 was already largely or fully developed (*sequential bilingualism*). This said, in designing their studies, bilingualism researchers take into account a number of theoretically motivated distinctions among bilinguals. They are summarized in Table 1.

Table 1. Types of bilinguals

Types of bilinguals	Explanation (see text for further information)
Simultaneous vs. sequential	Simultaneous exposure to both languages from birth or only following a period of unilingual exposure to L1
Early vs. late	Dual language exposure during childhood (but not necessarily from birth) or only after childhood (around puberty)
Early simultaneous vs. early sequential	Dual language exposure from birth vs. not from birth but still during childhood
Balanced vs. unbalanced/dominant	Equal vs. unequal level of proficiency in both languages
Proficient vs. non-proficient	Native-like proficiency in both languages vs. non-native ability in the weaker language
Active vs. passive	Possessing productive and receptive ability in both languages vs. only receptive ability in L2
Monocultural vs. bicultural	Identification with just one or with both language cultures
Subordinate vs. compound vs. coordinate	Differentiates between various types of representations in bilingual lexical memory
Additive vs. subtractive	L2 learning enriches the full language repertoire or weakens the L1

Some of the listed contrasts were already explained or implied above, namely those between *simultaneous* and *sequential* bilinguals, between *balanced* and *unbalanced* (or *dominant*) bilinguals, and between *proficient* and *non-proficient* bilinguals. Other contrasts are those between *active* (or *productive*) and *passive* (or *receptive*) bilinguals, between *monocultural* and *bicultural* bilinguals, and between *subordinate*, *compound*, and *coordinate* bilinguals. Active bilinguals understand and actively produce their two languages whereas passive bilinguals have receptive ability in both languages, understanding spoken input and being able to read, but do not use L2 in speech and/or writing. Bicultural bilinguals identify with the cultures associated with both their languages whereas the identity of monocultural bilinguals is shaped by one culture. Bicultural bilingualism typically arises in immigrants, who have learned their two languages in geographically distinct areas, each language embedded in a separate culture. Bilingualism and biculturalism are dissociated conditions: A person can be monocultural, identify with one culture, while perfectly mastering both languages.

The distinction between subordinate, compound, and coordinate bilingualism – introduced by Uriel Weinreich, the son of the earlier named Max Weinreich – focuses on different types of representations in bilingual lexical memory which may result from the different acquisition contexts that can lead towards bilingualism. For example, in compound

bilingualism a pair of translation equivalent words shares one meaning representation in memory. It was originally thought to arise from “fused” language contexts, that is, contexts wherein both languages are used interchangeably. Instead, in coordinate bilingualism each element in a translation pair maps onto a separate, language-specific meaning representation in memory. It was thought to result from using the languages in separate contexts within the same society, for instance, the one at work and the other at home. Alternatively, it may apply to immigrants who have acquired their languages in geographically and culturally separated regions. Evidence supporting these specific relations between word-to-meaning mappings in bilingual memory and language acquisition contexts is however sparse and more recent work suggests that the various types of mapping co-exist within the mental lexicon of individual bilinguals. What kind of word-to-meaning mappings apply to specific words appears to depend upon the usage frequency of the separate L2 words and the level of proficiency gained in L2.

A final distinction to briefly present here, one that also stresses the importance of the context of learning, is that between *additive* and *subtractive* bilingualism. Additive bilingualism arises when an L2 is learned in a context where both the L1 and the new language are well respected, as is the case when inhabitants of bilingual countries like Canada or Belgium have one of their nation’s official languages as their first language and later add the second to their linguistic repertoire, enriching the latter. In contrast, subtractive bilingualism emerges when L2 learners are forced by social pressure and language policies to primarily use their new language, usually the majority language, at the expense of their mother tongue. Under these circumstances the L2 gradually replaces the L1. When this happens in children who have not yet fully developed their L1, non-verbal cognitive development suffers as well. This is because language development and cognitive development are closely intertwined, language serving as an important tool for thinking and expressing thought. Discouraging children to use their mother tongue deprives them of the opportunity to exploit their full cognitive potential. In contrast, recent research suggests that additive bilingualism, both during development and in adulthood, is advantageous for cognitive functioning.

Bilingualism and age effects

The distinction between simultaneous and sequential bilinguals relates to two further ones, namely, between *early* and *late* bilinguals and between *early simultaneous* and *early sequential* bilinguals. Both these contrasts presumably have their roots in the popular but possibly misguided view that young children are better at language learning than older learners are, specifically, that there is a critical period (CP) early in life at which exposure to a language much take place for that language to ultimately become a fully-fledged one.

Adherents of this view assume that learning within the hypothesized CP comes about naturally and effortlessly, it being automatically triggered by language input, be it unilingual or bilingual. Once this *window of opportunity*, a period of heightened sensitivity to language input, is closed, language learning becomes a laborious enterprise that, as some assume, is always bound to fail. This means that, when starting late, the ultimate level of proficiency gained in an L2 could never meet the degree of proficiency exhibited by native speakers of the language; proficiency will plateau below an optimal level. The initiators of the idea that a CP for language learning exists (e.g., Lenneberg, 1967) attributed this transition from casual to cumbersome language acquisition to decreasing brain plasticity and concurrent lateralization of brain function, processes that were thought to be completed around puberty. In this scenario, early bilinguals are bilinguals who were exposed to both their languages prior to the closure of the CP whereas late bilinguals only started to receive dual language input after its offset. Only the former have thus been able to profit from a period of raised sensitivity to language input during L2 learning. For early *simultaneous* bilinguals, exposed to

both languages from birth, the pre-closure period lasted long enough for the acquisition of both languages to have been successfully completed by the time the CP has come to an end, at around age 12. Early *sequential* bilinguals also started receiving dual language input as young children, and well before the closure of the assumed CP, but not from the first days of life. In other words, for them concurrent learning of two languages only started after a period of monolingual L1 learning. If a CP exists, the degree of L2 proficiency that early sequential bilinguals ultimately attain should depend on the number of years they have been able to profit from their pre-pubertal language sensitivity. In other words, it depends on the age at which they started to receive dual language input: The younger they were when first being exposed to also the L2, the larger the chance that not only the L1 but also the L2 has become fully developed at the conclusion of the CP.

Although it is still widely accepted among both the general public and a large part of the L2 research community that a CP for language learning exists, a considerable body of empirical evidence speaks against this idea (e.g., Birdsong, 2006), such as the finding that many cases have been reported of late bilinguals possessing a nativelike proficiency in L2 and, conversely, that not all early simultaneous bilinguals have developed full competence in their languages. There is also evidence to suggest that L2 learning is in fact faster and more efficient in *older* learners. But still, the idea that older learners of an L2 are less likely than younger ones to fully come to master it stands unchallenged. Technically speaking: The level of *ultimate attainment* of those who started learning the L2 during childhood is on average higher than the ultimate level of L2 proficiency reached by those who started late. But instead of this being due to a decreased capacity for language learning after the closure of a period during which humans are especially sensitive to language input, this age effect may reflect differences between children and adults in motivation and dedication, investment of time and energy in language learning, the quality and naturalness of the linguistic input they receive, the amount of exposure to language, and other differences between the learning situations of young and older language learners there might be. Marinova-Todd, Marshall, and Snow (2000) advocated that, to further our understanding of age effects in language acquisition, the research focus should shift from the question why those who started to receive bilingual language input early in life do, *on average*, better than late learners to the question of what exactly underlies the success of late learners who *do* perform at native-like levels. Only then the “persistent myths that children learn more quickly than adults and that adults are incapable of achieving nativelike L2 proficiency” (p. 28) might be ousted.

Parallel language activation and cross-language influence

That late bilinguals achieving nativelike performance exist at all is noteworthy in itself because when bi- or multilinguals select one language for use their other language(s) cannot fully be “switched off”. Instead, during language use mental representations of linguistic units belonging to all of the known languages are activated in memory – a phenomenon called *parallel* or *language-nonselective* activation – and compete with one another during comprehension and production. This not only happens in bilingual settings such as during translation or in situations wherein language switching is common, but also in circumstances where the use of a single language is appropriate, for instance when one of the conversational partners is monolingual. Co-activated memory units in the non-selected language influence the use of the selected language, resulting in differences between the linguistic expressions of monolinguals and bi/multilinguals. The more languages a person masters and, thus, the larger this person’s linguistic database is, the larger the amount of nuisance activation the language processing mechanisms have to deal with.

Similarly, during learning a new language the other language(s) in the bi- or multilingual’s mind are not shut out but knowledge about previously acquired languages is exploited, mostly to the benefit of the learner: In language learning the Matthew effect,

summarized in the maxim “the rich get richer”, clearly applies, as real polyglots will eagerly confirm. But while bringing in prior linguistic knowledge during learning a new language, various processes are at work (e.g., transfer, restructuring, and convergence) that can lead to memory representations – of, for instance, particular phonemes or lexical concepts – in bi- and multilingual memory that deviate from the corresponding memory elements in monolingual native speakers of the language(s). These facts about language use and language learning have led to the encouragement to not adopt a *fractional* but an *holistic* view of bilingualism (Grosjean, 1989), that is, to not regard bilinguals as two monolinguals in one person but as specific language users whose linguistic performance should not be evaluated against monolinguals’ language use as the norm. It is with an eye to these common forms of cross-language interaction in bi- and multilinguals and in learners of further languages beyond L1 that the occurrence of nativelike late bilinguals is remarkable in itself.

Mägiste (1979) provided a particularly appealing early demonstration of the phenomenon of parallel activation in bilingual and multilingual minds. She tested groups of German and Swedish monolinguals, active German-Swedish bilinguals, and active trilinguals who mastered a third language in addition to L1 German and L2 Swedish, on a variety of simple language tasks such as word reading, naming pictured objects, and naming visually presented numbers. Responses were given in both German and Swedish, in separate test sessions. The response times increased as a function of the number of languages mastered: The German and Swedish monolinguals responded faster than the German-Swedish bilinguals and the trilinguals were slowest. This same response pattern occurred when the bi- and trilinguals were tested in L1 German and in L2 Swedish. These results are likely caused by competition of co-activated elements in the non-selected language(s) during lexical selection. For instance, when German-Swedish bilinguals name pictured objects in German, the memory representations of the objects’ names in non-selected Swedish are also activated in memory and compete with those to select, delaying the naming response. Other studies have shown that in the special case where the objects’ names in the non-selected language(s) are *cognates* of the name to select (that is, the lexical item to select and the co-activated lexical item(s) are form-similar word translations; e.g., *table-table* or *pear-poire* in English-French bilinguals), such co-activation does not hinder responding but accelerates it instead. An additional cause of the slower responses in bi- and trilinguals than in monolinguals in Mägiste’s study may be that the connections between the memory elements representing the forms and meanings of words are weaker in bilinguals than in monolinguals, and weaker in trilinguals than in bilinguals. The reason for this is that the strength of these connections depends on how often words are used and that (active) bi- and trilinguals use each single word in their multiple lexicons less often than monolinguals use each word in their one and only lexicon. The weaker the form-meaning connections are, the slower lexical access is.

Studies on third-language (L3) learning (e.g., Cenoz, 2003) have revealed a number of regularities in cross-language influence from previously learned languages on L3 output that suggest specific patterns of parallel activation in multilingual memory during the use of a not yet fully developed language. These studies have shown that the typological distance between the L3 and prior languages is one of the variables that determines the activation pattern: A prior language that is typologically closer to the L3 influences L3 processing more than a more distant language, suggesting that the former is activated more highly than the latter. When the prior languages are typologically equally close to the L3, L2 (*not* native L1), has the strongest influence on L3 processing, suggesting that L2 is more highly co-activated with L3 than is L1. These two effects are known as the *typological-distance effect* and the *foreign-language effect*, respectively.

Effects of bi- and multilingualism on lexical concepts and non-verbal cognition

As just shown, bi- and multilingualism affect language processing. A substantial body of evidence indicates that they also affect lexical concepts, that is, concepts that are expressed in a single word and that likely play a major role in thought, as thought's ingredients. In addition, bi- and multilingualism have been shown to affect various aspects of non-verbal cognitive processing.

The study of bilingual lexical concepts relates to research on linguistic diversity and *linguistic relativity*, the idea – also known as the Sapir-Whorf hypothesis – that the language we speak influences the way we think and that speakers of different languages therefore think differently. Because languages use different sets of linguistic tools to represent the environment, learners of different languages must pay attention to different aspects of their surroundings in order to properly learn their language. Consequently, the lexical concepts for the entities out there (like inanimate objects, people, and animals; such concepts are often called *object concepts*) may come to differ between speakers of different languages. For instance, the different grammatical-number marking systems of English (with obligatory grammatical number marking) and Yucatec (without such marking) may require that learners of English pay special attention to the shapes of the things that surround them, whereas learners of Yucatec possibly attend more to the material these entities are made of (Lucy & Gaskins, 2001). Therefore, native speakers of English and Yucatec may develop object concepts in which, respectively, the shape and the material of the concepts' referents is more prominently represented. If this relation between the allocation of attention during language learning and the content of the emerging concepts holds true, one wonders what the object concepts of bilinguals and multilinguals are like. Do simultaneous bilinguals, for example, concurrently develop two language-specific sets of object concepts or a single set containing concepts that merge the common and language-specific information elements associated with the separate elements of a translation pair? Or do they perhaps develop a single set of object concepts, each of them only containing the meaning elements common to both languages? These and other theoretical options suggest that the object concepts in bilinguals' minds may differ from the analogous concepts in monolingual minds and a growing body of empirical evidence indicates that such is indeed the case. If lexical concepts are indeed ingredients of thought, this implies that the content of thought differs between monolinguals and bi- and multilinguals.

It is impossible to draw a clear line between language, verbal cognition, on the one hand and non-verbal cognition on the other, if only because, as assumed here, lexical concepts belong to the realms of both language and thought. Still, in bi- and multilingualism research the question is posed whether and how the presence of multiple languages in one and the same mind affects non-verbal cognition. A diverse set of empirical findings indicates that it does, in both children and adults, and often to the benefit of the bi/multilingual. For example, speakers of more than one language may be better at divergent thinking and more creative than monolinguals, and bilingualism may be advantageous for *Theory of Mind*, the ability to imagine what goes on in other people's minds. A currently thriving research area deals with the question of whether bilingualism is beneficial for *executive control*, an umbrella term for the complex of mental processes involved in planning and carrying out acts, such as attending to the relevant sources of information and inhibiting irrelevant information. The reason why this connection between bilingualism and executive control might exist is that the nuisance activation in the non-selected language system as described above has to be resolved and that, possibly, a domain-general executive control system, instead of a system solely dedicated to language processing, may play a major role in this. If true, actively using multiple languages may be advantageous for executive control in general because it trains this executive-control system. The original enthusiasm about the potentially far-reaching consequences of this (active bilingualism and the continual practice of the executive-control system this requires

has, for example, been shown to protect the elderly against the onset of dementia; Bialystok, Craik, & Freedman, 2007) has now tempered because the beneficial effects on executive control seem to apply to specific bilingual groups only. But still, this line of research suggests that bilingualism impacts on non-verbal cognition and, more generally, that language is not a cognitively encapsulated human faculty.

SEE ALSO: Identity, Bicultural and Multicultural; Identity, Bilingual and Multilingual; Sapir-Whorf Hypothesis

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Brief Author Biography

Annette M. B. de Groot is professor of Experimental Psycholinguistics at the University of Amsterdam. Her earlier research focused on word recognition, the mental lexicon, and the psychology of reading and spelling. Her recent work primarily deals with (individual) bilingualism and multilingualism, focusing on bilingual word processing, foreign-language vocabulary acquisition, and translation and simultaneous interpreting. Among her many publications are two volumes that she edited with Judith Kroll, *Tutorials in bilingualism: Psycholinguistic perspectives* and the *Handbook of bilingualism: Psycholinguistic approaches*, and the monograph *Language and cognition in bilinguals and multilinguals: An introduction*.

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