BOĞAZİÇİ UNIVERSITY
SUMMER TERM

PSY 101.01
Introduction to Psychology
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PSY 101.01
Introduction to Psychology

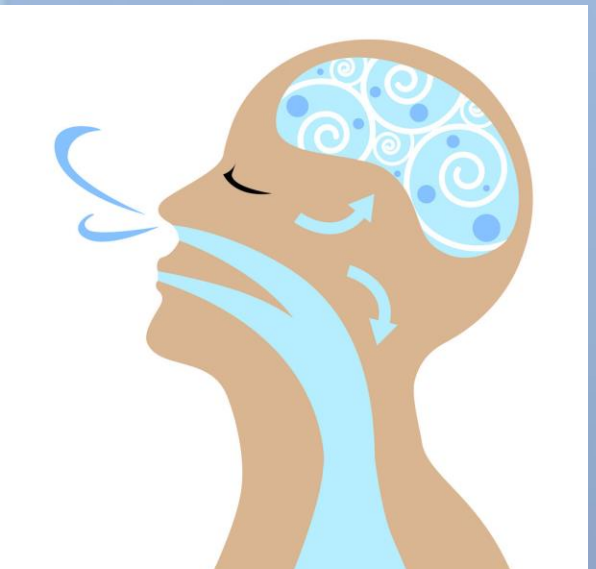
Introduction to Developmental Psychology

Language development

PSY 101.01
Introduction to Psychology

Let’s Begin

…with breathing



Language

- Language: a system of conventional spoken, manual (signed), or written symbols by means of which human beings, as members of a social group and participants in its culture, express themselves.
- Composed of a signifier and a signified (sembolic)
- Psycholinguistics : the study of the relationships between linguistic behaviour and psychological processes, including the process of language acquisition.

The beginnings of communication: social interactions

The mother-child dyad is the first place of interaction.

They are primarily based on the sensory and motor repertoire of the newborn.

The first communications are above all para-verbal (non-verbal):

Gestures	Visuals
Postural	Auditory
Olfactory	Tastes

Adult-Child interactions: Infant directed speech (“Motherese”)

- High-pitched voice
- Exaggeration of intonations
- Simple sentence structures
- Simple sentence meanings

- Helps capturing infant’s attention
- Helps language learning

Joint Attention

- Joint attention characterizes the ability of the child and the adult to simultaneously focus their attention on the same object, the same task, voluntarily.

It has two main components:

- Attention must be paid jointly to the same element.
- Attention must be paid to each other

- Pre-requisite for language development!

Development of Joint Attention

- 9 months:
  - rough understanding of the direction of gaze
  - ability to use pointing to ask for an inaccessible object

- 12 months:
  - Joint attention.
  - Ability to interpret the direction of gaze, to point to an object of interest, and to wait for a reaction on the face of the interlocutor.

  - Videos Joint attention 1 pointing

Language Development & Psycholinguistics

Psycholinguistics

Developmental Psycholinguistics

Different Phonological levels of Language

- Prosodic
- Phonemic
- Phonotactics

Prosody

- **Prosody**: Musicality, melody of speech, including characteristics of tempo, intonation, rhythm, accent, which may or may not have linguistic meanings.
- It varies according to:

- Language
- The dialect
- The communicative intention
- Emotion

Phonemes of a language

- **Phonemes**:

– The shortest segment of oral language

– Sound elements of language, not conveying meaning, but making it possible to establish differences in meaning.

– Their combination creates the words

– Please note: phonemes are not the same as letters.

Phonotactics of a language

- Set of combinatorial rules for phonemes
- Native distinctive sounds available in a language are called phonemes and how these sounds can be combined following certain rules defines the phonotactics of a language.
- Each language has its own set of sound combinations that are allowed or “legal” in the formation of words and those that are not allowed, or “illegal”. The term “phonotactically legal” is defined as, all combinations of phonemes that can be positioned in a syllable (Hooper, 1972) or word (McQueen, 1998) in a given language.

Phonotactics of a language

- Phonotactic legality determines the way phonemes are connected to each other in the syllable, in other words, phonotactically illegal phoneme combinations cannot be found in any words of a language.
- Legal vs illegal combinations

Ex: Legal combinations in Turkish : existing sound combinations (e.g. ge, oy, ka….)

Ex Illegal combinations in Turkish : phonotactically illegal, violates the rules of the language (e.g. “ou”, ““gh-”)

Stages of language acquisition:

– Speech processing

– Segmentation of words (discrimination of words in continuous speech)

– Babbling

– Comprehension

– Production of isolated words

– Beginning of grammar

Neurological base + social environment = language acquisition

Lanugage Acquisition : Speech processing

- The fetus hears the mother's voice (3rd trimester)
- He/she can recognize different sounds
- Can differentiate native language's prosody

- Infants are born with an ability to hear and discriminate all phonemes of all languages

Thierry Phoneme acquisition

Language Acquisition : Specialization in language processing

New born

"Universal" language learner
Phoneme discrimination for all phonemes in the world

Language specialization
(adaptive perceptual narrowing)

Around 9-12 months

Unable to discriminate all phonetic contrasts
Specialized in native language
Can discriminate native phoneme contrasts better
Can no longer discriminate non-native phoneme contrasts

Language Acquisition : Specialization in language processing

- 6 -12 months:
- Discrimination of native phonemes gets better
- Discrimination of non-native phonemes reduce (eg, Werker & Tees, 1984, review: Werker, 2018)

- 6 -12 months:
- Higher sensitivity to phonotactic regularities (combinations of phonemes) of the native language
- Eg 9 months can distinguish words with high vs low phonotactic probabilities (Jusczyk et al., 1994).

Specialization in language processing

Conclusion:

- Towards the end of the 1st year of life:
- Infants understand the regularities of their mother tongue (phonetics and phonotactics) --> 'typical words'
- **Language specialization (adaptive perceptual narrowing)**
- Attunement to their mother tongue

Language Acquisition : Comprehension

- Language comprehension develops faster than production
- At only 6-months, infants have been shown to identify the referents of a few common nouns that they hear in everyday life. Eg part of the body and fruit (Bergelson & Swingley, 2012; Tincoff & Jusczyk, 2012).
- At 8-months, infants can retain in memory words that they heard frequently in stories a few weeks ago (Jusczyk & Hohne, 1997).

Language Acquisition : Comprehension

- By 13- to 14-months, they can rapidly learn associations between words and objects (Woodward et al., 1994; Werker et al., 1998).

- Between 15- and 24- months, infants improve dramatically the speed and accuracy of spoken word recognition (Fernald et al.,1998; Fernald et al., 2006; Fernald, McRoberts et al., 2001).

Word Production

- Infants already develop remarkable word comprehension abilities during the first year of life as they tune into their native language (e.g., Hallé & de Boysson-Bardies, 1994; Jusczyk, 1997; Tincoff & Jusczyk, 1999).
- Productive vocabulary on the other hand is practically nonexistent until the **first words are uttered around 12-months of age** (e.g., Benedict, 1979).
- Initially vocabulary growth is rather slow, however, around the end of the second year of life, many children reach a remarkable speed of word learning of up to 10 words a day (e.g. Bates et al., 1995; Dromi, 1987).

Word Production : Vocabulary Spurt

- The growth curve for known words starts to steepen after the first 50–100 words learnt, and by 24 months, children produce on average two to three hundred words, with a considerable interpersonal variance (e.g., Fenson et al., 1994; see also Braginsky et al., 2016).
- This period, characterized by a high rate of word learning, is known as the **"vocabulary spurt"** (e.g., Goldfield & Reznick, 1990; Gopnik & Meltzoff, 1987; Nelson, 1973; Reznick & Goldfield, 1992; for reviews, see Ganger & Brent, 2004; Nazzi & Bertoncini, 2003).

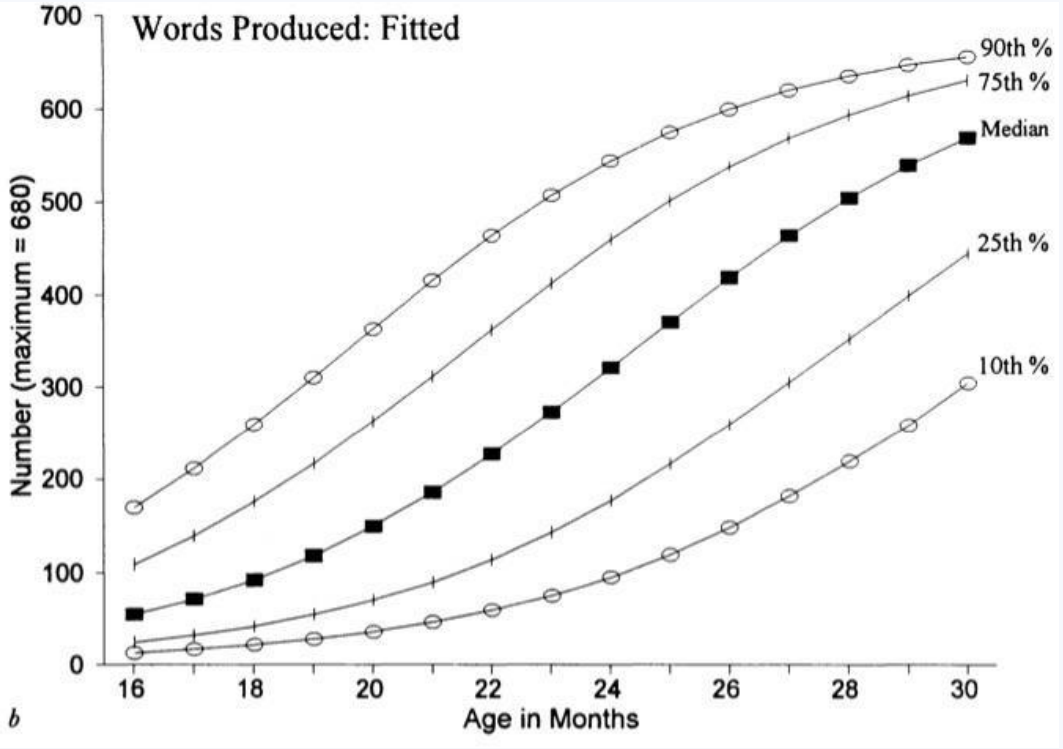


Figure: Number of words produced by toddlers, dots represent median values for each month. Figure from Fenson et al., 1994.

Measuring language development in infants : *CDIs*

- Parental reports on infant's language skills is a very commonly used technique to collect developmental norms of language development (e.g., Fenson et al., 2007; Bates et al., 1995) to eventually help identify language delays in developing populations (for a review, see Law & Roy, 2008).
- One of the most widely used parental questionnaires for language assessment is the MacArthur Communicative Development Inventories (CDIs) (Fenson et al., 199; Fenson et al., 2007).
- CDIs are widely used as parent inventories of early language development. They are internationally recognized in developmental research and have various advantages, such as being standardized and translated to multiple languages.
- https://mb-cdi.stanford.edu

CDI (English short version example)

VOCABULARY CHECKLIST

For words your child understands but does not yet say on his/her own, mark the first column (understands). For words that your child not only understands but also says on his/her own, mark the second column (understands and says). If your child uses a different pronunciation of a word or another word with the same meaning (e.g., nana for grandma), mark it anyway.

	Understands	Understands and Says		Understands	Understands and Says		Understands	Understands and Says
choo choo	○	○	chair	○	○	wait	○	○
meow	○	○	couch	○	○	break	○	○
ouch	○	○	kitchen	○	○	feed	○	○
uh oh	○	○	table	○	○	finish	○	○
bird	○	○	television	○	○	help	○	○
dog	○	○	blanket	○	○	jump	○	○
duck	○	○	bottle	○	○	kick	○	○
kitty	○	○	cup	○	○	kiss	○	○
lion	○	○	dish	○	○	push	○	○
mouse	○	○	lamp	○	○	sing	○	○
car	○	○	radio	○	○	smile	○	○
stroller	○	○	spoon	○	○	night	○	○
ball	○	○	flower	○	○	today	○	○
book	○	○	home	○	○	all gone	○	○
doll	○	○	moon	○	○	big	○	○

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Language development : BILINGUALISM

What is the % of children in the world who hear at least a 2 languages at home?

- A-10%
- B-30%
- C-50%
- D-80%

Who is a bilingual?

- + 7000 languages in the world (Eberhard et al., 2020) •
- Plurilingualism → bilingualism (2 languages)
- Difficult to define/categorise: Who is bilingual?
- How much exposure, what type of exposure, age of acquisition?

(review, Bialystok, 2001)

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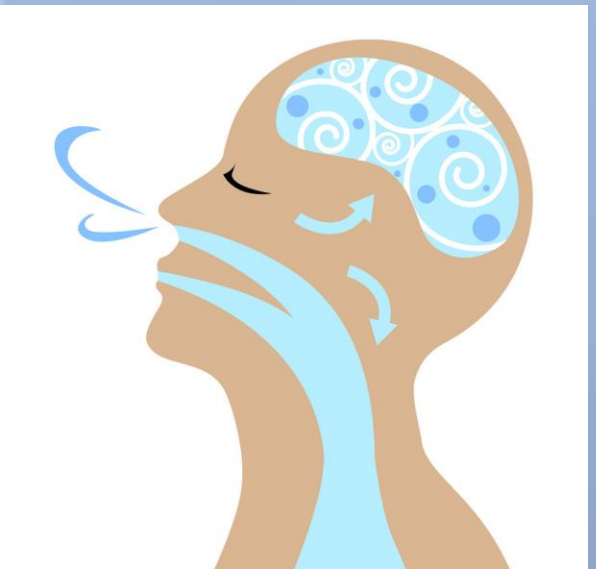


What type of bilingual

- Simultaneous bilingualism:

– 2 mother tongues learnt at the same time

– before age 3

- Consecutive bilingualism (early/late):

– Acquisition one after another (before 6/7 early)

Language dominance

- **Dominance** of one language compared to the other:
- Balanced bilingual: around 50% L1 and L2
- Unbalanced bilingual : one is more or less clearly more dominant

“Dominance of a language” Varies over the year, periods of life

- There is no perfect bilingual

Discussion Topic

- The social status of each language influences the bilingual's motivation, family and environmental motivation and language practice

- What are the social statuses of different languages you observe, what are the effects on people speaking these languages?

The language environment

monolingual child

A tongue

Several speakers

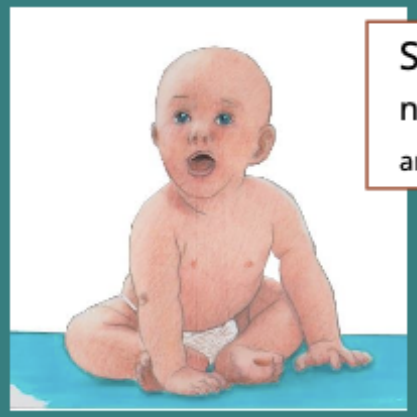
Socio-economic ≠

bilingual child

Language 1

Language 2

Strategy of parents: one parent-a language



Several native speakers and not native

Speakers

m e there not

g e not you languages

Socio-economic

Pressure of society, school on maintaining the ML

- Language Development in Bilinguals depends on **the amount of exposure** to each language (strong and positive correlation)

Floccia et al. (2018):

- 372 bilingual children aged 2,
- 13 different languages (at least one of the parents speaks the 2nd language):
- Regardless of (language 2) L2, vocabulary size depends on exposure to each language

The language environment

monolingual child

A tongue

Several speakers

Socio-economic ≠

bilingual child

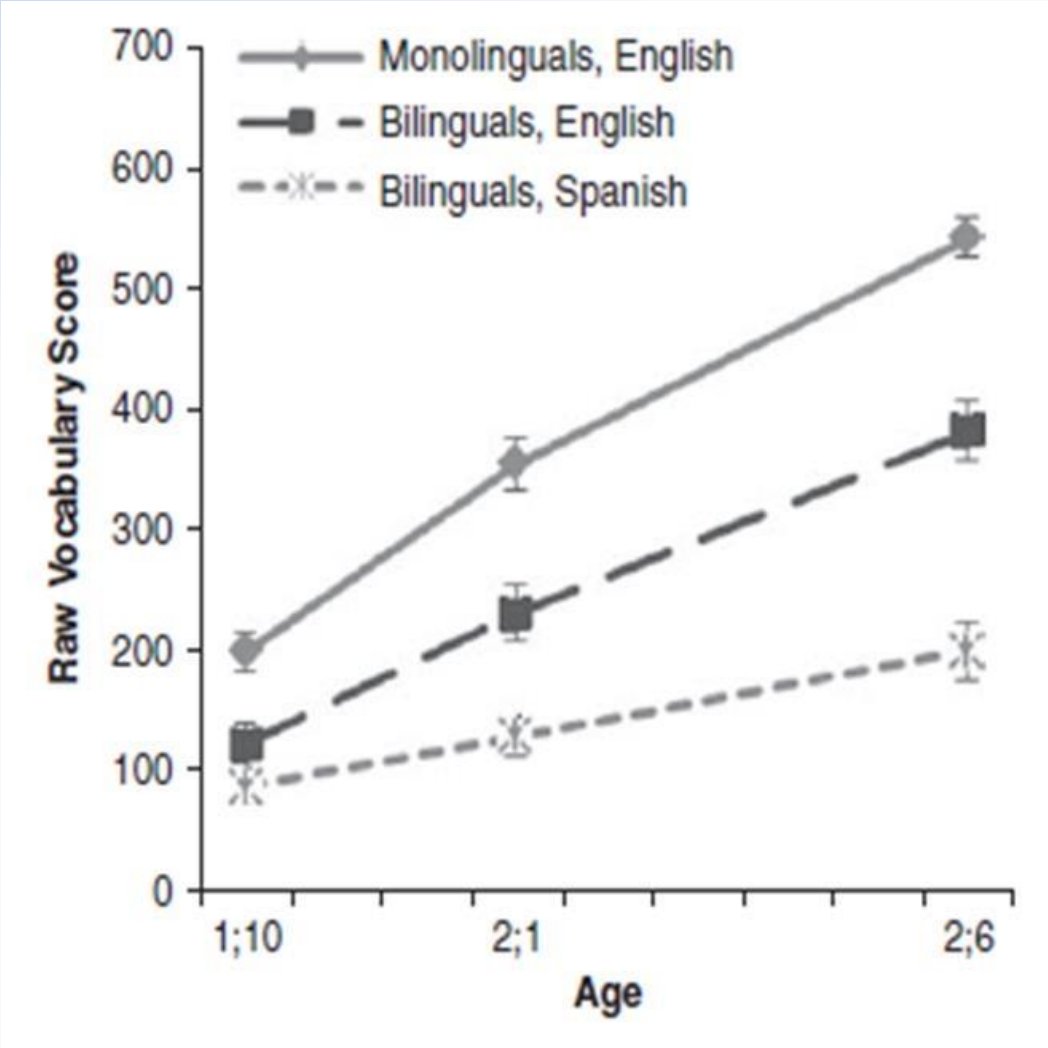
Less exhibition

Language 1

Language 2

Fewer production

Does Bilingualism cause language delay?



little question : what is the dominant language here?

If we test ONLY English (ONLY one language)

Then bilinguals show a bit of delay COMPARED to Monolinguals

BUT….

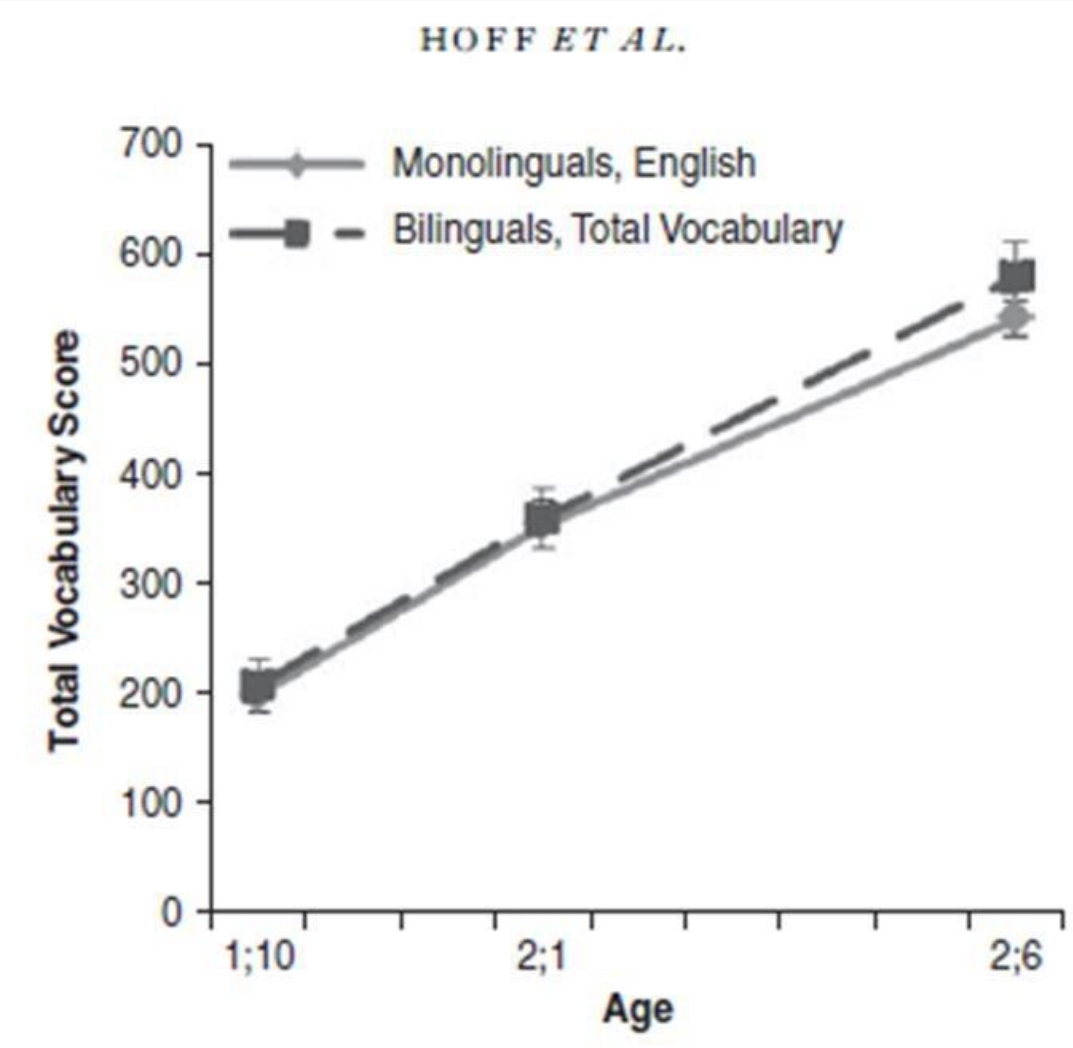
Does Bilingualism cause language delay?

If we test both languages,

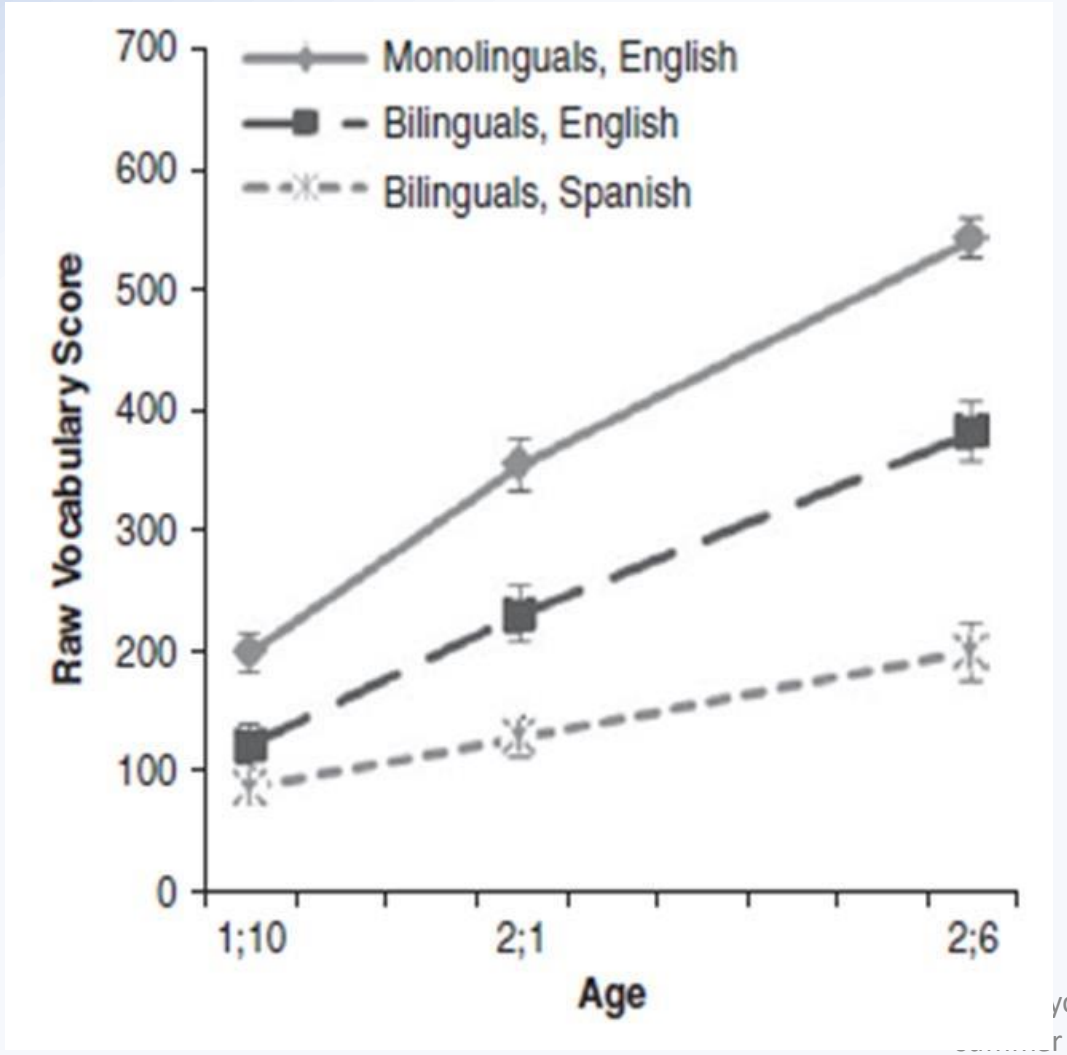
Then bilinguals have similar

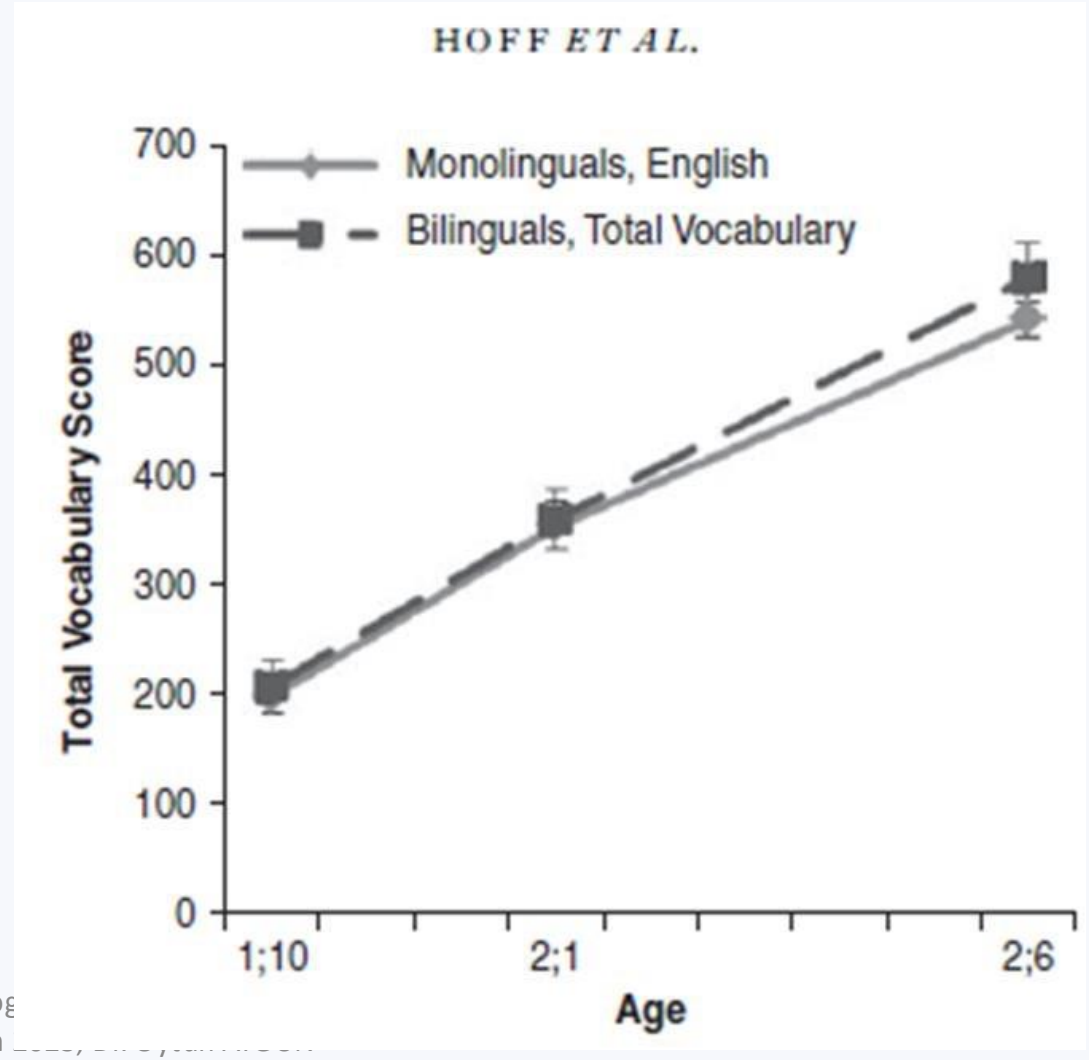
language abilities compared to

Monolinguals !!!



Bilingualism DOES NOT cause language delay when both languages are taken into account





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Thank you for your attention!