








## ONE BRAIN, TWO LANGUAGES, MANY ADVANTAGES

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### What is bilingualism and why is it good for you?



- Bilingual = someone who is fluent in more than one language and uses both languages on a regular basis.
- Knowing more than one language changes the brain in a significant way.
- Learning languages = investing on better brains!

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### Bilingualism: In Europe and in the world




- Bilingualism is the norm in many places of the world, but still relatively unusual in Europe.
- More international mobility leads to more bilingual/families and more bilingual/multilingual speakers


Scotland is now a multilingual country where at least 160 different languages are spoken

- There is a growing need for information about how bilingualism works at different ages.

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### Bilingualism = a lot more than two languages



- **Social** advantages:
  - access to two cultures
  - more tolerance towards/interest in other cultures
  - easier to travel, find a job later on, etc.
- What are the linguistic and mental benefits of bilingualism?

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### Some common myths about child bilingualism



~~“BILINGUALISM SLOWS DOWN THE CHILD’S GENERAL DEVELOPMENT”~~


~~“BILINGUALISM LEADS TO LANGUAGE CONFUSION”~~

~~“BILINGUALISM IS USEFUL ONLY IF BOTH LANGUAGES ARE WIDELY SPOKEN”~~


**There are no foundations to these ideas!**

- Bilingualism IN ANY LANGUAGES gives children many linguistic benefits and some specific non-linguistic advantages that improve how they think and act in everyday situations.

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### How does the child’s brain work?



- Children can acquire any language without any ‘effort’, just like learning to walk.
- The child’s brain is NOT “naturally monolingual”: it can deal with two (or even more) languages.

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**How do researchers study babies?**




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**So, are bilingual children really confused?**



**The answer is NO!**

- Very young bilingual babies can distinguish the sounds of the two languages they have been exposed to.
- They do this even when the two languages are very similar - e.g. Spanish and Catalan.



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**Other cues used by bilingual babies**

- Mouth gestures and facial expressions are also used by bilingual babies to separate their languages.
- Bilingual babies at 8 months can distinguish the two languages just by watching silent talking faces.

(Werker & Byers-Heinlein 2008)



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**Do bilingual children mix their languages?**

- Children generally don't mix their languages (but they can do so deliberately and for fun!)
- Language mixing is usually **not a sign of linguistic confusion**:
  - adult bilinguals do it too
  - mixing is not random: it has a “grammar”
  - children mix when they speak with other bilinguals, not when they speak to monolinguals.



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**Spontaneous knowledge about language**

- Bilingual children **'notice' how language works.**
- Having two different language systems makes the structure of language clearer to the child.
- Because of their spontaneous understanding of language, bilingual children find it easier to pick up other languages.

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**Words**

- For example, bilingual children have two words for the same object (e.g. *mela* and *apple* for ) and can distinguish between *forms* and *meanings*.
- They understand the conventional relationship between **objects** in the real world and their **labels**.
- They find it easier to learn relations among words, i.e. accept that the same object can be both a DOG and an ANIMAL. 

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**Reading advantages**

- Bilingualism affects some key background components to literacy.
- Bilingual children tend to be **more precocious readers**.
- Reading skills transfer across (similar) languages.

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**Learning to read**

- Bilingual children find it easier to identify and recognize the sounds of the spoken language.
- Bilingual children acquiring alphabetic languages have an earlier understanding of the **correspondence between letters and sounds**.
- E.g. Which is the longest word?

**TRAIN**  **CATERPILLAR** 

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**Awareness of other people's point of view**

- Bilingual children understand at an earlier age that other people may have a different perspective from their own.
- This advantage comes from children's constant experience of choosing a language on the basis of the person they talk to.

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**Attention and 'executive function'**

Bilinguals tend to be better than monolinguals at:


- **selective attention** on specific features while ignoring other salient but misleading features
- **switching between tasks** that require attention to different instructions

These differences persist throughout life: they are found both in bilingual children and in adults who learned another language in childhood or adolescence.


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**Examples: task switching**

Task A: sorting objects by shape



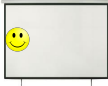
Task B: sorting objects by colour:




- Bilingual children are faster than monolinguals to adapt to Task B.

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**But bilingual babies show this advantage too!**

**BIDADA** → 

**BIBIDA** → 

- Babies hear a made-up word and see a face appear on the left of the screen.
- After a while both the word and the position of the face change.
- 7-month old bilingual babies are faster than monolinguals at adapting to the new condition.

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**Can you also do it? Try this!**

First, just read these words as fast as you can.

RED	GREEN	BLUE	YELLOW	PINK
ORANGE	BLUE	GREEN	BLUE	WHITE
GREEN	YELLOW	ORANGE	BLUE	WHITE
BROWN	RED	BLUE	YELLOW	GREEN
PINK	YELLOW	GREEN	BLUE	RED

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**Now try this:**

Say the colour of the word, not what the word says:

RED	GREEN	BLUE	YELLOW	PINK
ORANGE	BLUE	GREEN	BLUE	WHITE
GREEN	YELLOW	ORANGE	BLUE	WHITE
BROWN	RED	BLUE	YELLOW	GREEN
PINK	YELLOW	GREEN	BLUE	RED

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**Why was the second task more difficult?**

- Because you can't help reading what the words say: reading is very automatic and slows you down when you try to name the colour of the ink.
- Bilinguals are less distracted by automatic tasks like reading.

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**Why these advantages?**

- The two languages of bilinguals are always active.
- Bilinguals have to 'filter out' one language when they speak the other.
- They have massive practice of using a control mechanism that allows them to limit interference between their languages.
- The same mechanism may be used in other activities that require controlled attention and inhibition of conflicting cues.

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**Executive function in real-life**

- Real-life multitasking environments (for example, driving) require responding only to high-priority tasks and ignoring low-priority tasks.
- Mathematical abilities (and many other aspects of learning) are also dependent on executive function.

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## Long term advantages

- Some new studies suggests that bilingualism may offer some protection against the deterioration of cognitive abilities in old age.
- The more languages were spoken in life, the better cognitive functions are maintained.
- Bilinguals develop dementia up to 4 years later.
- We plan to study the mental abilities of elderly bilingual speakers of Gaelic and English in the Western Isles.

(Bialystok, Craik, Klein & Viswanathan 2004)


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## It doesn't matter which languages

- If the advantages of bilingualism are related to the switching from one language to the other, and blocking one language when the other one is spoken, it doesn't matter **WHICH languages bilingual children learn**.
- **THERE ARE NO 'USELESS' LANGUAGES!**


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## Disadvantages of bilingualism

- Some bilingual children are **'late talkers'**
- The **size of vocabulary in each language is smaller** than in monolinguals, especially in the first few years (but the global size of their mental vocabulary in the two languages may be in fact larger).
- **Access to words can be slower** in bilinguals.


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## Raising a child bilingual: What's the best time?

- Many parents in bilingual families think that it is better to wait to introduce one of the languages until the other one is 'well established'.
- **But this deprives the child of language input in the most crucial years.**
- It is more difficult to introduce the other language later on and for the parents to use a 'new' language around the house.


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## Being committed to bilingualism: planning, opportunities, motivation

- Bilingual children need to **hear enough of both languages.**
- This takes some effort and consistency in the family.
- Education in a foreign language from the pre-school years (even baby nursery) increases the amount of input heard in the language (but it's not the only way).

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## Bilingual input: different patterns

- One parent – one language
- Minority language at home, majority language outside the home
- Majority language at home, minority language at nursery/school

**Any of these will work if it provides enough input in both languages!**

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**Bilingual input: different patterns**

- Input and opportunities to speak a language enhance that particular language
- Frequent switching from one language to the other enhance mental flexibility.
- A continuum of possibilities from rigid diglossia to daily use of two (or more) languages in most situations.

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**Attitudes towards minority languages**

- Children are very sensitive to people's attitudes towards language: they know whether a language is considered 'unimportant'.
- Children need to realise that
  - both languages and cultures are valued by the family and the community.
  - both languages can be used in all situations and are spoken by many people outside the family.

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**Variety of speakers around the child**

- Children benefit from hearing the minority language from many different speakers.
- Non-native speakers are good sources of input too!

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**What about learning a second language as an adult?**

- Traditional tendency to focus on **limitations** in adult second language learning.
- What do we see we focus on **achievement**?

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**Late bilingualism in the brain**

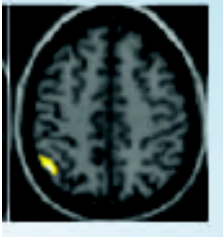
- Cognitive neuroscience research shows that **attained proficiency** is more important than **age of acquisition** as a determinant of L2.
- For the late bilinguals who achieve high proficiency, patterns of brain activation are similar to those of native learners of the language.

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**The brain adapts to a second language**

Mechelli et al (2004): the brain of adult late bilinguals


- Even if you start learning a second language as an adult, your brain expands and adapts by growing more gray matter.



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## Very advanced L2 speakers




1	Non-user
2	Intermittent user
3	Extremely limited user
4	Limited user
5	Modest user
6	Competent user
7	Good user
8	Very good user
9	Expert user
10	NEAR-NATIVE

- In Edinburgh we study speakers who started learning a second language as adults and reached an exceptional level of ability in it.

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## How far can you go?




- Their grammar and vocabulary are as good as native speakers' – and in some cases better!
- Most of the errors advanced late bilinguals make are due to the process of handling two languages and not to poor or incomplete knowledge of the languages.

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## How far can you go?




- It is possible to learn languages to very high levels if you start later (but not as spontaneously as in childhood).
- And you can get some of the mental advantages of bilingualism!

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## Monolingualism: is it curable?




- Countries that don't invest in language learning - like the UK - are missing out not only on LANGUAGE skills, but also on the MENTAL FLEXIBILITY that comes with bilingualism.
- This affects British students, researchers, civil servants, and businesses.

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## Monolingualism: is it curable?




THES, 21/11/2010:

*"The most basic worry is that this leaves the largely monoglot British people, at a time of economic crisis, without some of the skills essential for flourishing in a competitive global marketplace".*

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## Monolingualism: is it curable?




FT.com, 20/11/2011


*"Manuel Barroso, European Commission president, last week bemoaned the "shockingly low" number of Britons applying to work in Brussels, amid fears that they are being deterred by their lack of a foreign language..."*

*Normally, candidates have to take the exam in a foreign tongue and also demonstrate working knowledge of a third European language. This requirement has proved too much for many Britons".*

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## Monolingualism: is it curable?




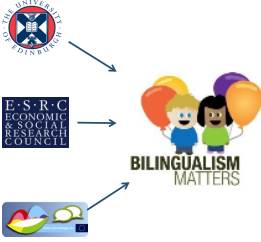
**ATTITUDES TOWARDS LANGUAGE LEARNING NEED TO CHANGE**

**INFORMATION IS CRUCIAL!**

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## A Scottish initiative: Bilingualism Matters

- Since Oct 2008:
  - 55 community talks
  - 42 seminars to international companies and organizations
  - 37 media articles and interviews
  - Partnerships in Scotland and UK
  - Branches in Norway, Western Isles and Greece

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## Bilingualism Matters: areas of engagement



- Language learning exposure in the preschool and primary school years
- Maintenance of home languages in immigrant children
- Maintenance of regional minority languages
- (e.g. Gaelic, Sardinian, Breton, etc.)

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## Bilingualism Matters: what does it provide?




- A **website** containing:
  - FAQs (translated into 15 languages)
  - Local resources
  - Current events: talks, workshops, etc.
  - General audience references (books, articles and web-based resources)
- **Email replies** to requests for advice and information.
- **Talks** in the community
- **Seminars and workshops** for the private sector and for international companies and organisations.

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## Website and contacts



**We welcome feedback and suggestions:**

<http://www.bilingualism-matters.org.uk/>

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[antonella@ling.ed.ac.uk](mailto:antonella@ling.ed.ac.uk)

**THANK YOU!**

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