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Multilingual Education or How to Make Pupils Smarter...

How Content and Language Integrated Learning is a Driver for Educational Change

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Outline

1. How CLIL **conquered** Europe...
2. **Research** and **results** of CLIL Research...
3. **Explanations**...
4. Lessons for **learning**





Main points

Content and Language Integrated Learning (CLIL) is a learning and teaching approach characterized by teaching content through an additional language and that *reaches out far beyond language learning and teaching...*

It deeply influences *the learning process* itself as can be seen from the *cognitive and neuroscientific aspects* related to this approach...

This is *a major driver for educational change...*



The Conquest

- **CLIL** is related to the *immersion experience* in Canada that started in the 1960s...
- Europe adopted the approach in the mid 1990s but *with considerable adaptations...*
 - *the Canadian school organisation and educational traditions...*
 - *the role of English and French in North-America...*
 - *the scope of educational change...*
 - *internationalization*
 - *dissatisfaction with results of traditional (language) education*
 - *new scientific insights in learning processes*



CLIL in Europe today... (cf. European Commission/EACEA/Eurydice 2017:14)

- introduced in almost all countries...
- few countries have it in all schools...
- challenges :
 - teacher education
 - teachers' language proficiency (B2, C1)
 - methodological skills...
- and
- knowledge of learning processes...

Although the Agency calls CLIL learning limited,
tremendous progress has been made in the past 20 years...



Six basic research questions as a starting point

Related to mastery of languages

- 1. Mastery of the target language...**
- 2. Mastery of the mother tongue...**

Related to educational and social psychological aspects

- 3. Mastery of subject matter...**
- 4. Attitudes and motivation...**

Related to cognition and neuroscientific aspects

- 5. How about cognitive development?**
- 6. What about brain development?**



Results related to the mastery of languages

- 1. Mastery of the target language...**
 - *much better than traditional language learning approaches...*
 - *especially pragmatic knowledge (listening and speaking)*
 - *good results when reading and writing are involved...*
- 2. Mastery of the mother tongue...**
 - *is equal (but most of the time) better than with traditional approaches...*

No negative side effects whatsoever...



Results related to educational and social psychological aspects

- 3. Mastery of subject matter...**
 - *is equal (but most of the time) better results than with traditional approaches...*
- 4. Attitudes and motivation...**
 - *positive attitudes toward the language(s) as well as the subject matter...*

No negative side effects whatsoever...



Results related to cognitive and neuroscientific aspects

5. How about cognitive development?

- **sensational results: in primary and early secondary: CLIL pupils obtain better results in mathematics...** (Jäppinen 2005, Van de Craen *et al.* 2007a,b,c, Lorenzo *et al.* 2010, Murray 2010, Surmont 2016)

6. What with brain development?

- **brain organization differs between multilingual and monolingual children**

No negative side effects whatsoever...



Mastery of target and mother tongue...

-The best way for learning languages? The **Communicative approach...**

- authentic communication...
- repetitive...
- functionally-pragmatic (see Gatbonton & Segalowitz 2005)

-In a CLIL learning environment one cannot be but authentic, repetitive and functionally pragmatic since **the communication is sincere and open...**





Educational and social psychological aspects...

- Young children adore *challenges*...
- Young children often learn *spontaneous* and *seemingly effortless*...
- Good results *are stimulating* and hence...
 - create joy and pleasure that *enhance* learning...
 - *fear of talking* is unheard of in a CLIL context...
- Hence *better* school results and *positive attitudes*...



Cognitive and neuroscientific aspects

- Better results for mathematics can be explained in two ways
 1. Often the language pedagogical (didactic) approach makes use of a *repetitive method*... subject matter is 'repeated' in two languages...
Repetition leads to better results...
 2. *Knowledge of concepts* in more than one language leads to a better understanding of these concepts...
This leads to *better results*...



Cognitive and neuroscientific aspects

Neuroscientific aspects need some understanding of the brain

1. Brains *like* challenges...
2. Brains *need* challenges...
3. The more the brain is challenged *the better it develops...*
4. Let's have a look at *the developing brain...*



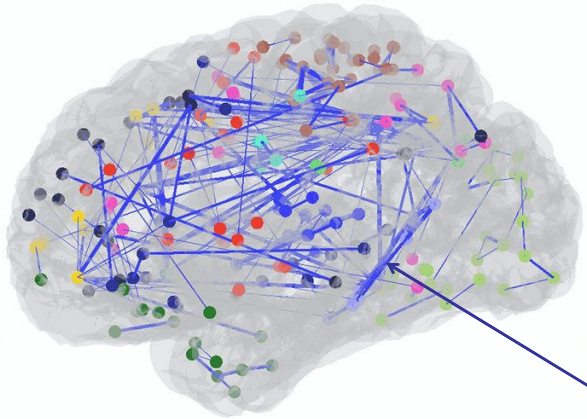
The brain of a new born baby (left), a six-year-old boy/girl (middle),
a 25-year-old adult (right) (cf. Carter 1998:18)



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Explanations



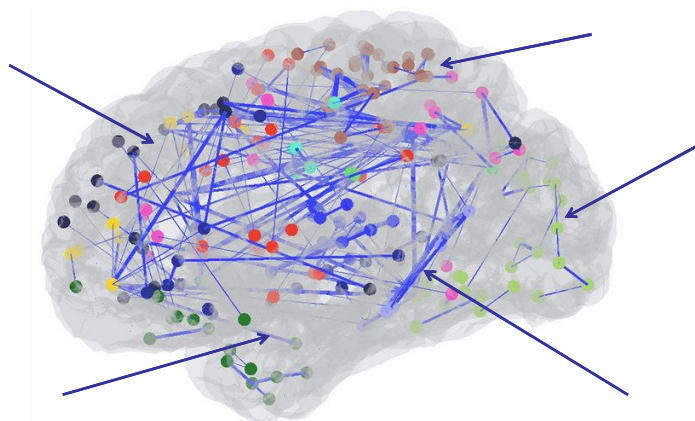
Strong connections in a human brain



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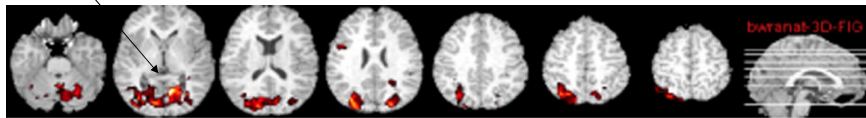
Explanations



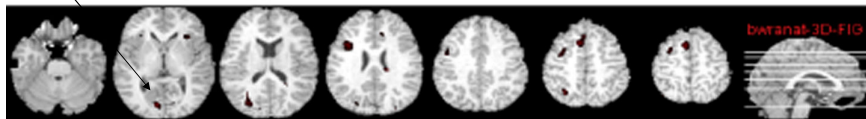
Strong and weak connections in a human brain



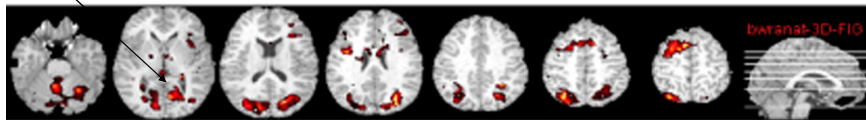
Brainscans of three groups of pupils...



Monolinguals in school language



Early, highly proficient bilinguals in their school language



Early-late, proficient bilinguals in their school language (SL = L2)

(Mondt
2005)

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Explanations...

Where do these brain differences come from?

From a most important but often neglected aspect of CLIL,
namely: ***implicit learning processes...***

Two kinds of learning, namely explicit and implicit, ***implicit learning has a very special status...***

Why do we say that CLIL refers to implicit learning?

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Explanations

Implicit learning: “[complex information] is [learned] without complete verbalisable knowledge of what is learned” (Seger 1994:164).

Characteristics of implicit learning are... (Reber 1993).

- **robust...**
- **less prone to variation...**
- **more adapted to group learning (cf. cooperative learning)...**
- **IQ independent...**
- **age independent ...**

(cf. learning to play a musical instrument ...)



Implicit learning



Implicit learning



CLIL characteristics...

1. Focus on **communicative acquisition**...
2. The use of **implicit learning processes**...
3. Tolerant attitudes towards **language** and **language variation**...
4. **Acceptance of shortcomings** without any pressure...
(cf. **translanguaging** Garcia & Li Wei 2014)
5. **Double evaluation** of language and content...

(cf. Van de Craen *et al.* 2007a,b,c., 2012a,b, 2014, Martens & Van de Craen 2017)

Or *what CLIL teaches the researcher...*

On an organizational level...

A CLIL school is NOT an ordinary school, it just seems that way...

- *enthusiasm...*
- *collaboration...*
- *cooperation...*



Or *what CLIL teaches the researcher...*

- *On dyslexia...*

Many think that CLIL is bad for dyslectic pupils...

HOWEVER

*There are **strong indications** that the **number of dyslectics in CLIL schools** is considerably smaller than in traditional schools...*





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The relevance of CLIL...

Or *what CLIL teaches the researcher...*

- Reasoning

- **dyslexia and motor problems often go together** (Nicolson et al. 2001)

- **this is the cerebellar deficit hypothesis...**

- **stimulation of the cerebellum improves reading and writing problems... for example by doing equilibrium exercises...**



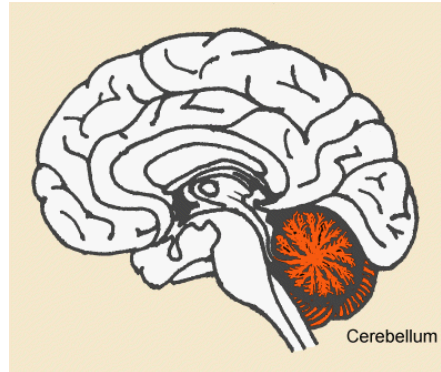
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The relevance of CLIL...





The relevance of CLIL...



The relevance of CLIL...

Or *what CLIL teaches the researcher...*

- Reasoning

- **dyslexia and motor problems often go together** (Nicolson et al. 2001)

- **this is the cerebellar deficit hypothesis...**

- **stimulation of the cerebellum improves reading and writing problems... for example by doing equilibrium exercises...**

- **implicit learning stimulates the cerebellum** (Matsamura et al. 2004) **and as a result CLIL works as a kind of dam against dyslexia...**



Looking forward...

- **The development of oral communication** in CLIL pupils has yet to be examined in detail and the same goes for **reading and writing development...**
- **Implicit learning processes** and CLIL merit attention...
- Cognitive aspects such as the **interaction between the development of mathematical skills and general language proficiency** still have to be studied in more detail...
- **Aspects related to the brain**, such as **implicit learning and the cerebellum, dyslexia, autism and Down's syndrome...** need attention...



Looking forward...

- ◆ **CLIL affects all levels of education and all kinds of pupils irrespective of social class and language background...**
- ◆ **Weak pupils become stronger and strong pupils remain strong...**
- ◆ The days of traditional (language) education **are numbered...**
- ◆ **CLIL is a major driver for innovative education...**



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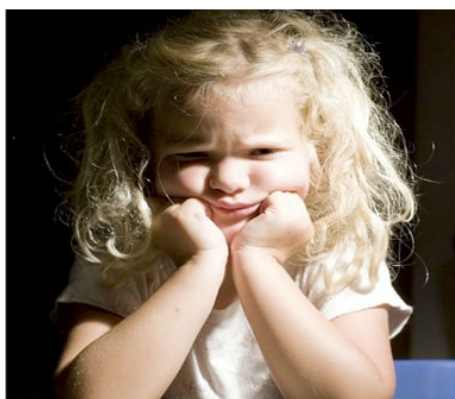
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Σας ευχαριστώ για την προσοχή σας...

Thank you for your attention...

Merci de votre attention...

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