

Planning CLIL-Based Mathematics Lessons: From Material Design to Models of Implementation



Content and Language Integrated Learning

Let's start with the underlying principles of the approach

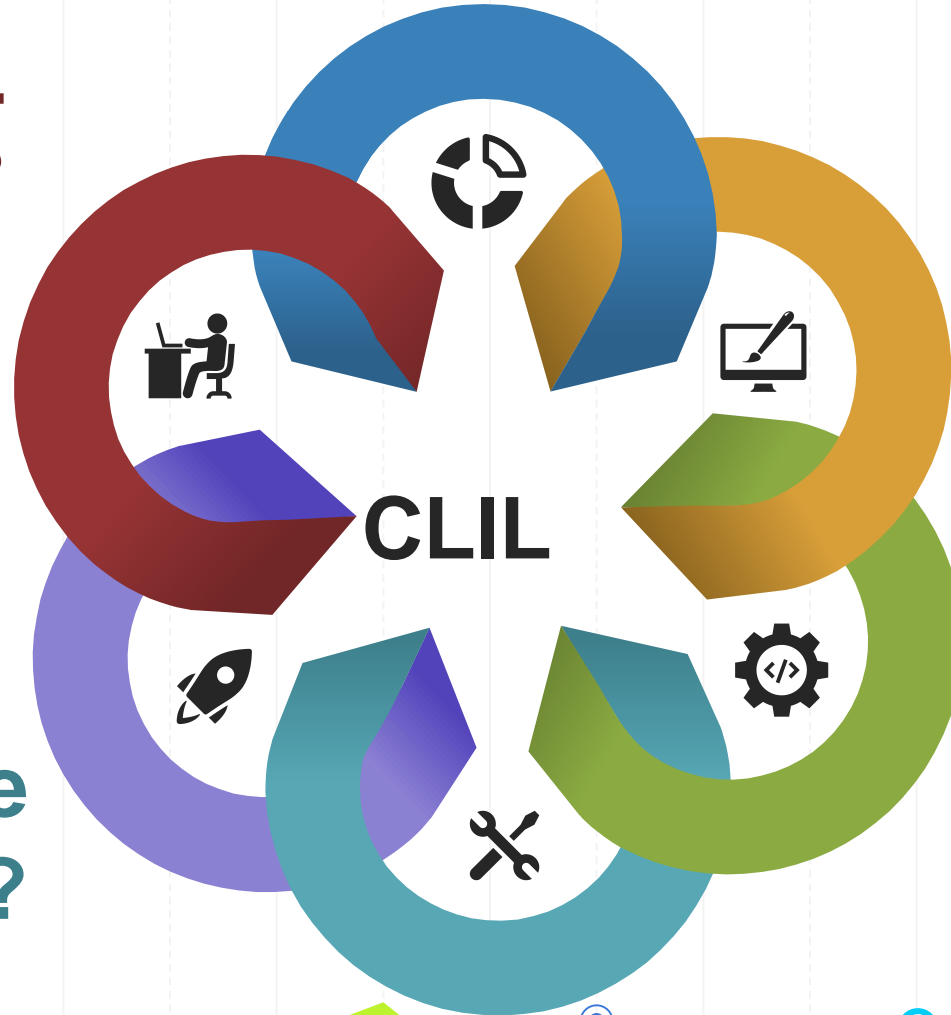
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Outline

How to Put CLIL into Practice?

Why CLIL?

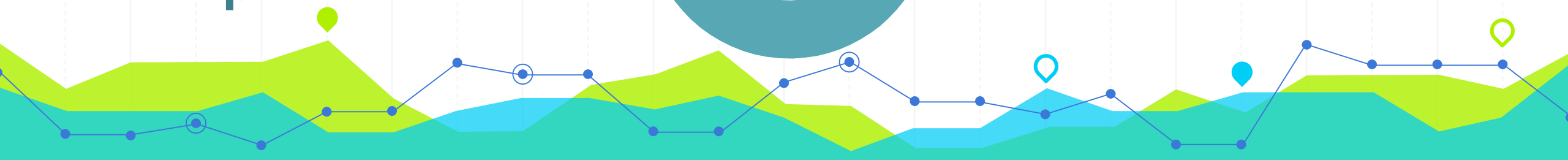
Where do people implement it?



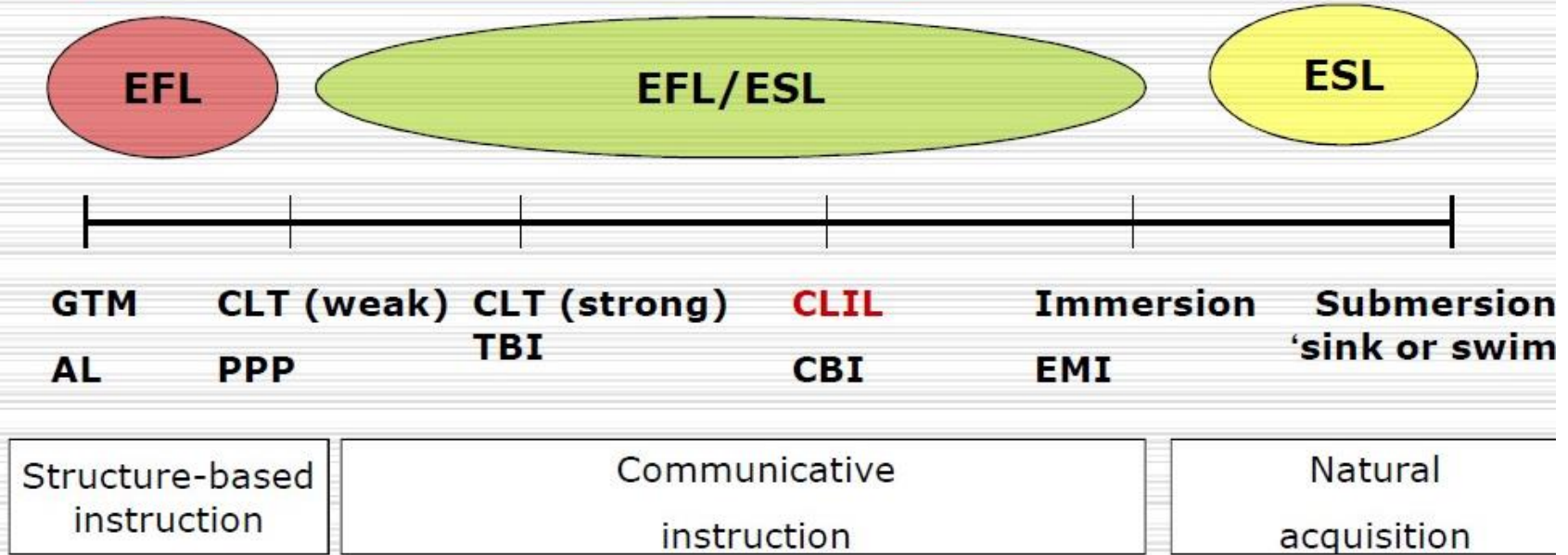
What is CLIL?

Who are engaged?

When to implement it?



ELT methodologies



AL = Audio-lingualism
 CBI = Content-based instruction
 CLT = Communicative Language Teaching
 EFL = English as a foreign language
 EMI = English medium instruction
 ESL = English as a second language
 GTM = Grammar translation method
 PPP = Presentation-Practice-Production
 TBI = Task-based instruction

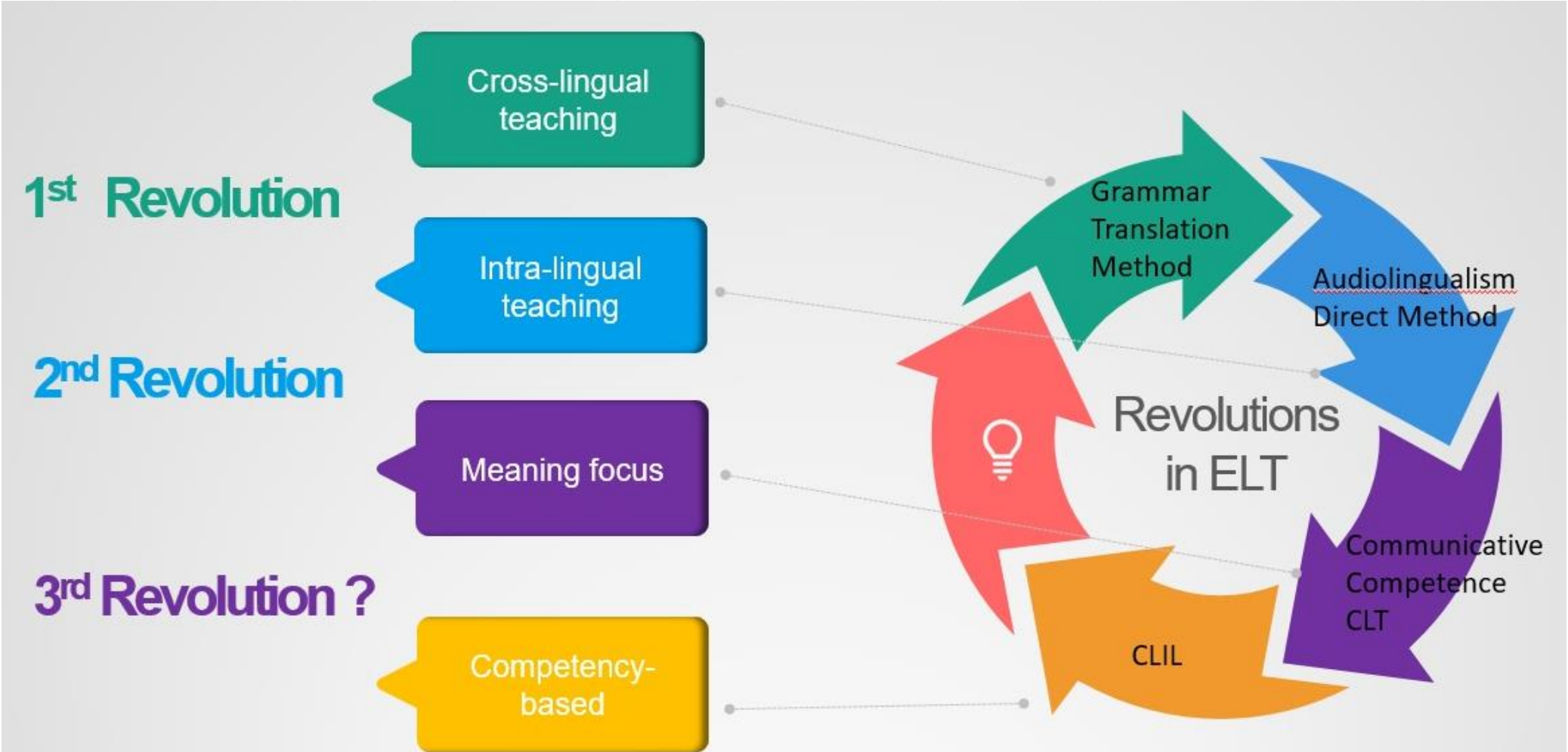
(Ikeda 2012: 2)

Retrieved from: http://conference.jaltcue.org/wp-content/uploads/2016/10/2016-JALT-CUE-CLIL_Makotolkeda.pdf

Guy Cook's "revolutions" in ELT

Approx. time line:

1850
1900
1950
1970
2000
2010



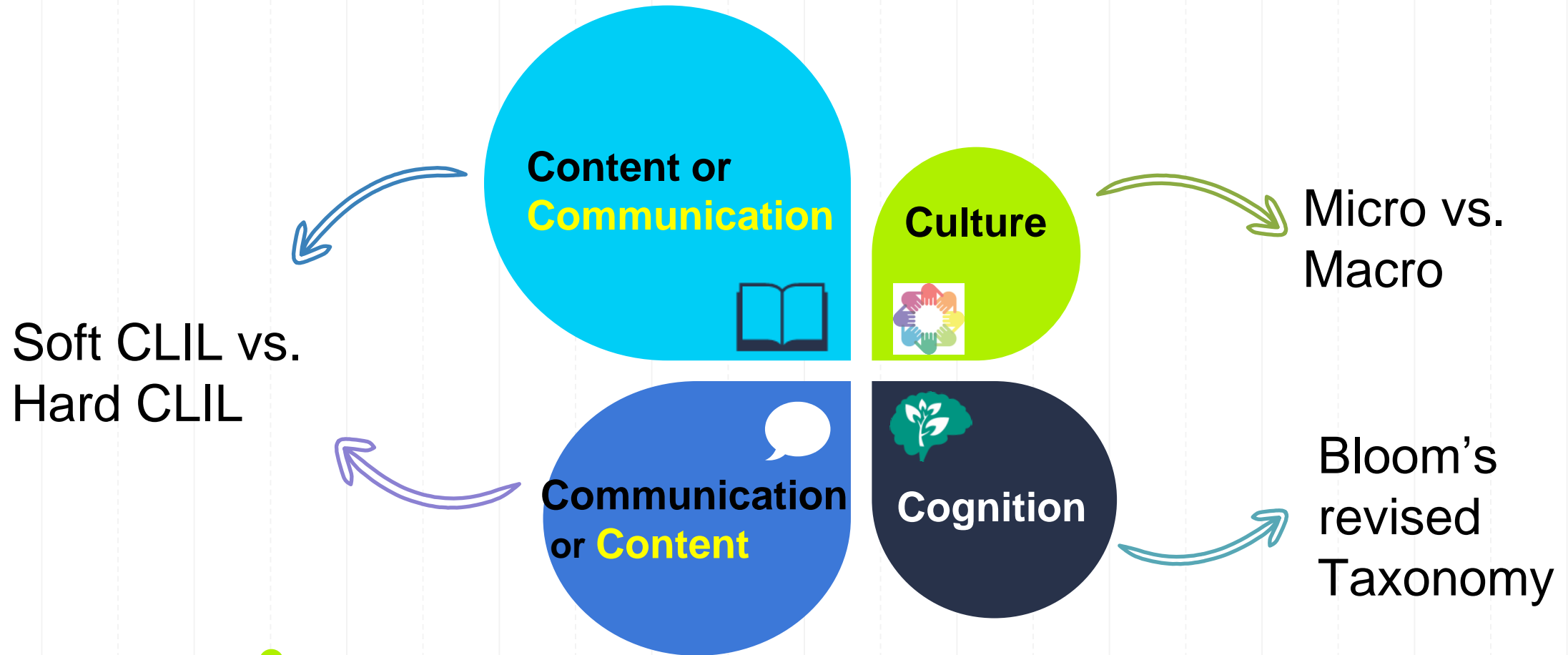
Based on Cook 2010:22; Ikeda: 2019

What is CLIL?



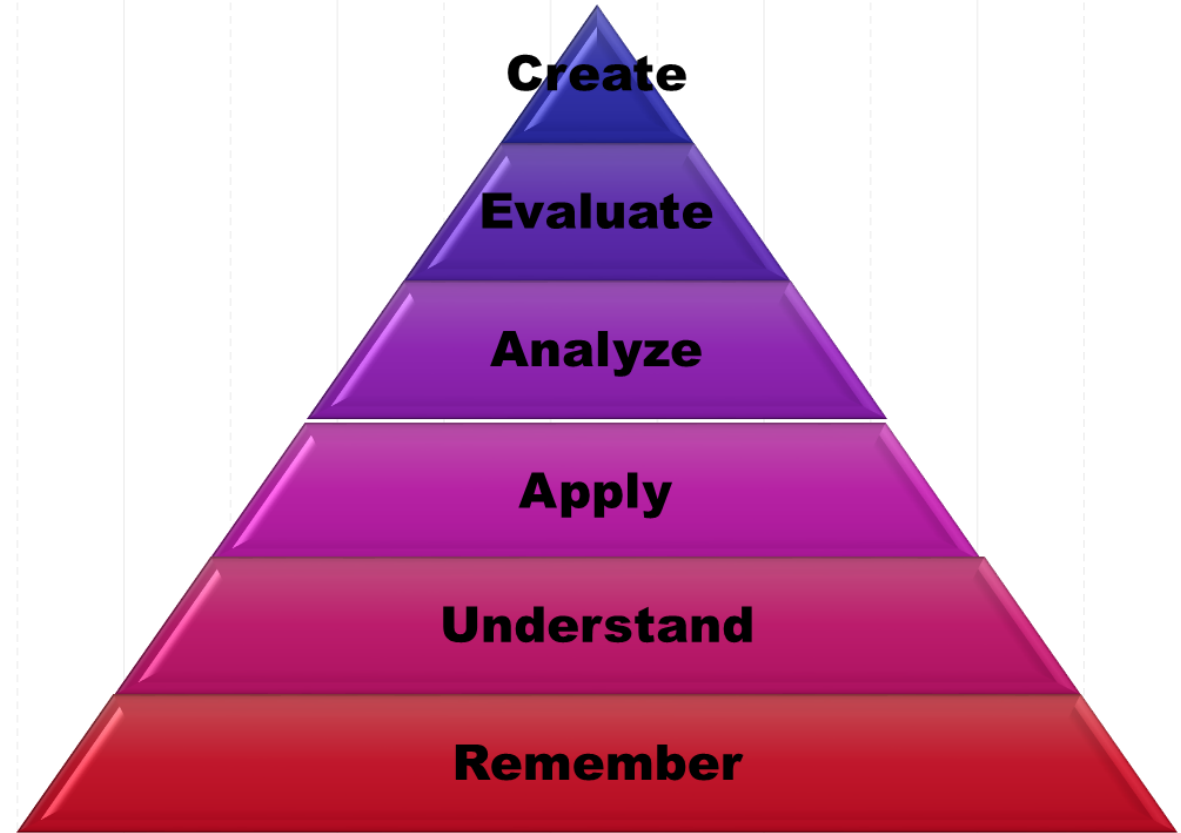
CLIL refers to situations where subjects, or parts of subjects, are taught through a foreign language with dual-focused aims, namely the learning of content, and the simultaneous learning of a foreign language. (Marsh, 1994)

The 4Cs Framework by Do Coyle



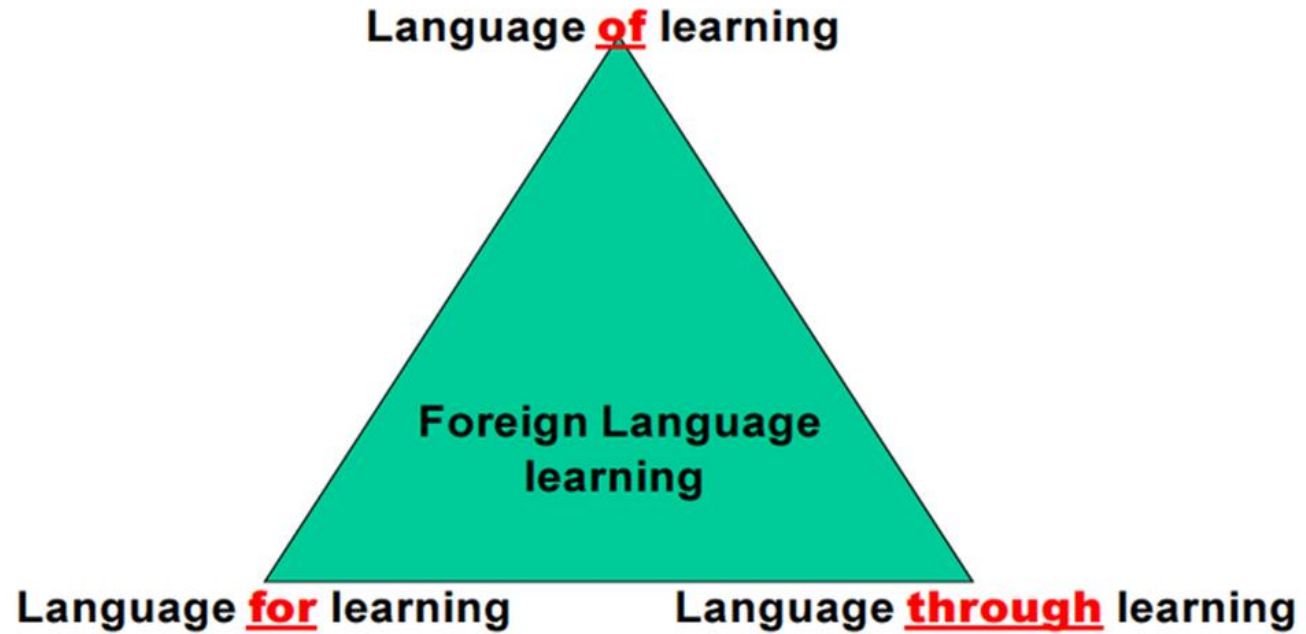
Cognition

Bloom's revised
Taxonomy



Communication

Reconceptualising Language Learning



The Language Triptych

Coyle, Hood, Marsh, 2010

Langue

Learn to use the language (accuracy)



vs .

Parole

Use the language to learn (fluency)

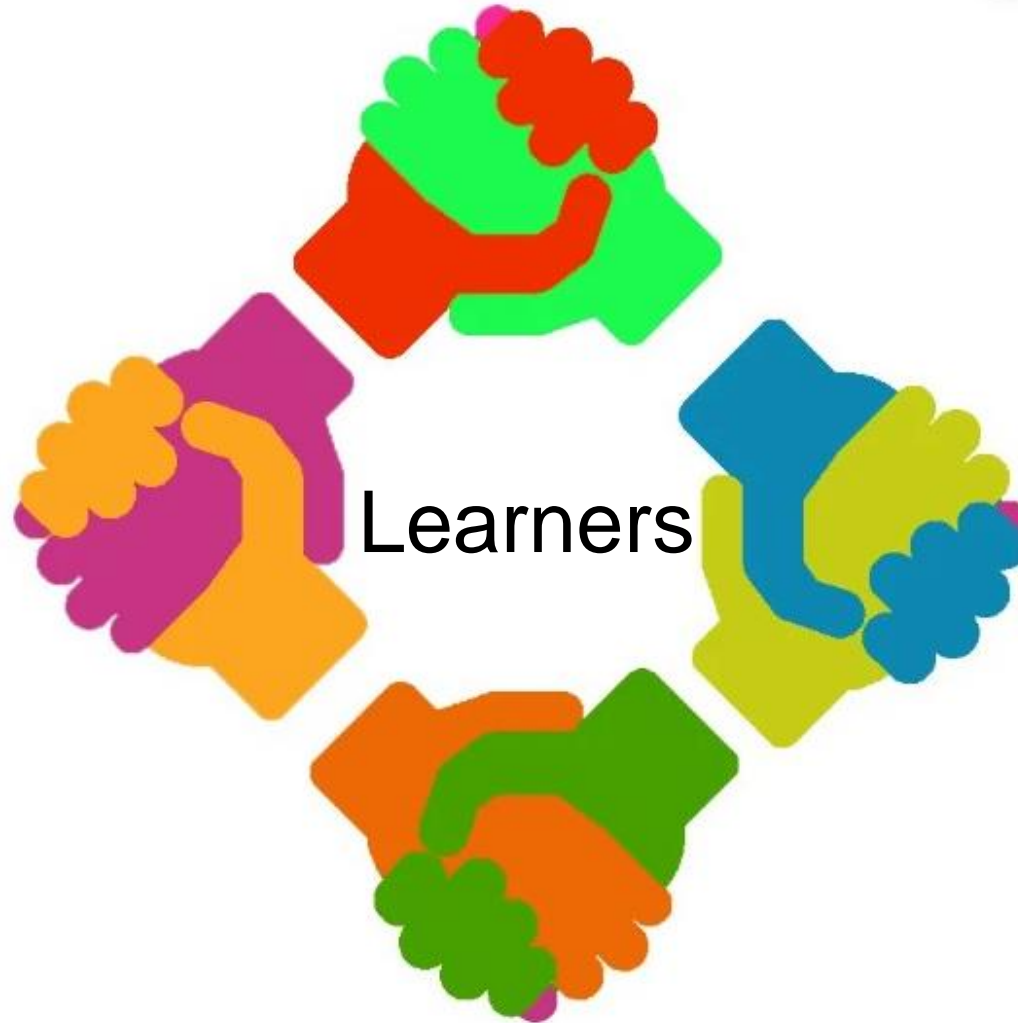


Who are engaged?



● Teachers

● Policy Makers



Learners

● Staff

● Researchers

When to implemented?

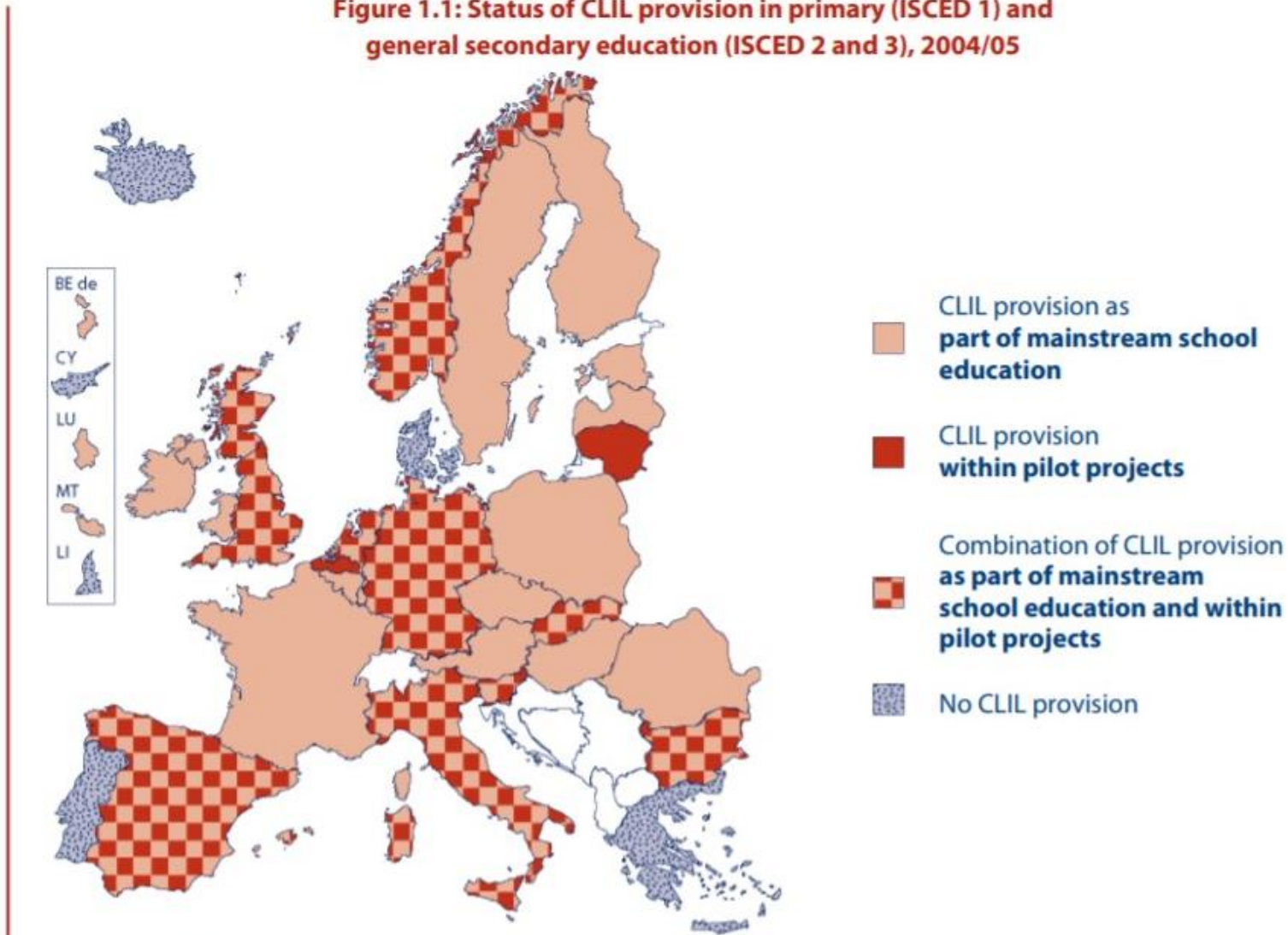
Any age:
K-12, college,
adults

From a single
lesson to weeks,
or a program

Prepare and Plan

CLIL on the Map

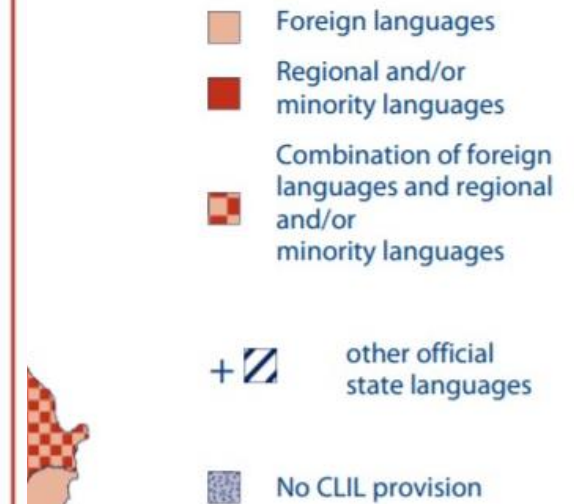
Figure 1.1: Status of CLIL provision in primary (ISCED 1) and general secondary education (ISCED 2 and 3), 2004/05



Source: Eurydice.

Figure 1.1 – Position of CLIL in the Education System

for CLIL provision in primary (ISCED 1) and in (ISCED 2 and 3), 2004/05



Why CLIL?

Wouldn't you prefer it if your students could leave being able to speak about **probability** rather than **present perfect**?



CLIL VS. Future Skills (21ST Century)

Cognition vs. Creativity

Communication
vs. Communication

Collaboration vs.
Individual construction

Content vs. Critical
Thinking

Culture vs. Citizenship





Content and Language Integrated Learning

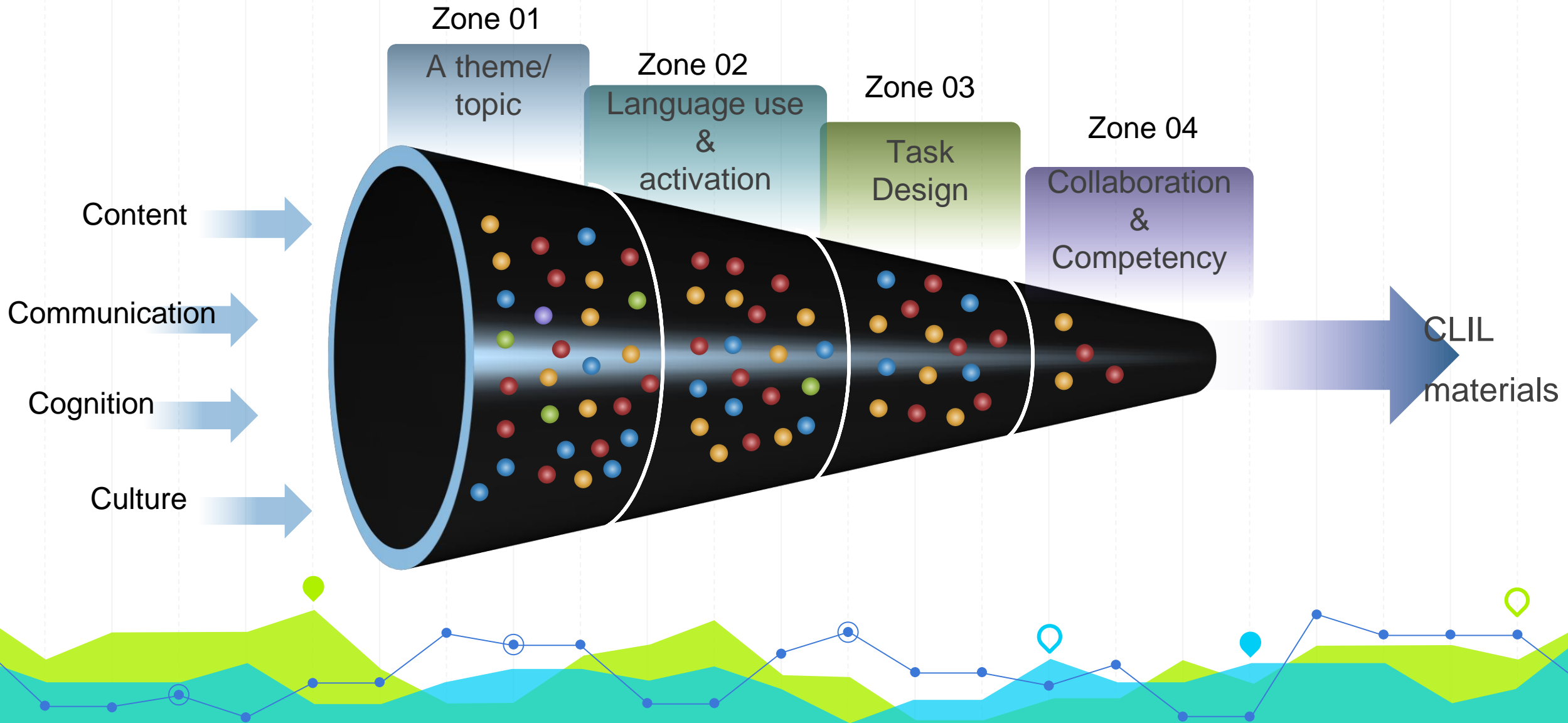
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WHAT WE WOULD LIKE TO SHARE?

CLIL Math Materials

- How did we start it?
- How did we revise it?
- How does it look like?
- What are we going to do next?

CLIL Material Design



CLIL Lesson Plan Worksheet

Content	Communication	Cognition	Culture
Declarative knowledge	Language knowledge	Lower-order thinking skills	Cooperative learning
Procedural knowledge	Language skills	Higher-order thinking skills	Global Awareness

(by Ikeda, 2019)

CLIL Lesson Plan: Contingency Tables

www.ck12.org

across the top of the table are the two gender options for this particular study: 'male students' and 'female students'. Down the left side are the two candy preference options: 'chocolate' and 'fruit'. The data in the center of the table indicates the reported candy preferences of the 100 students polled during the study.

Commonly, there will be one additional row and column for totals, like this:

TABLE 1.2:

	Male	Female	TOTAL
Chocolate Candy	42	77	119
Fruit Candy	58	23	81
TOTAL	100	100	200

Notice that you can run a quick check on the calculation of totals, since the "total of totals" should be the same from either direction: $119 + 81 = 200 = 100 + 100$.

4Cs vs. Contingency Tables



Content

- Organize data from different random variables
- Identify different percentage-based observations



Communication

- Common seafood
- Expressions of preferences
- Compassion



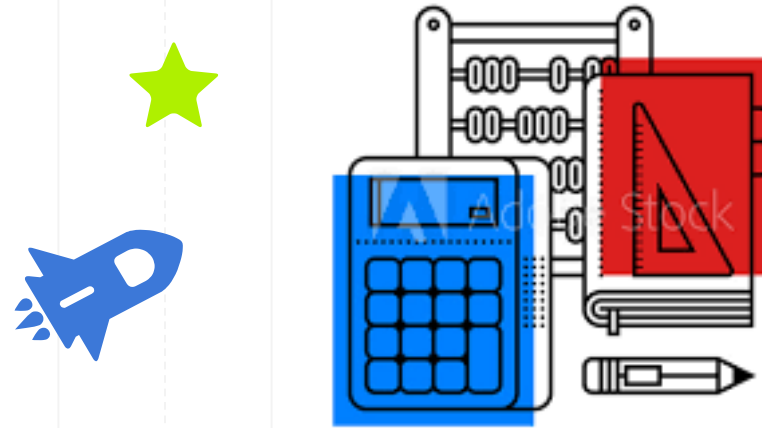
Cognition

- Get a basic picture of the interrelation between two variables
- Make a contingency table



Community/ Culture

- Respect different preferences
- Collaborate with classmates to solve problems.



Content first?



HYPOTHESIS If a whole number ends in 0 or 5, then we can divide it by 5 (it is divisible by 5)

PROOF 135 ends in 5, which implies that we can divide it by 5 (which implies that it is divisible by 5)

[From: Teaching Maths through English – a CLIL approach](#)

Models of Implementation



Researchers:
Math & English



Teachers:
Math & English



OUR PROCESS IS EASY





THANKS!

Any questions?

