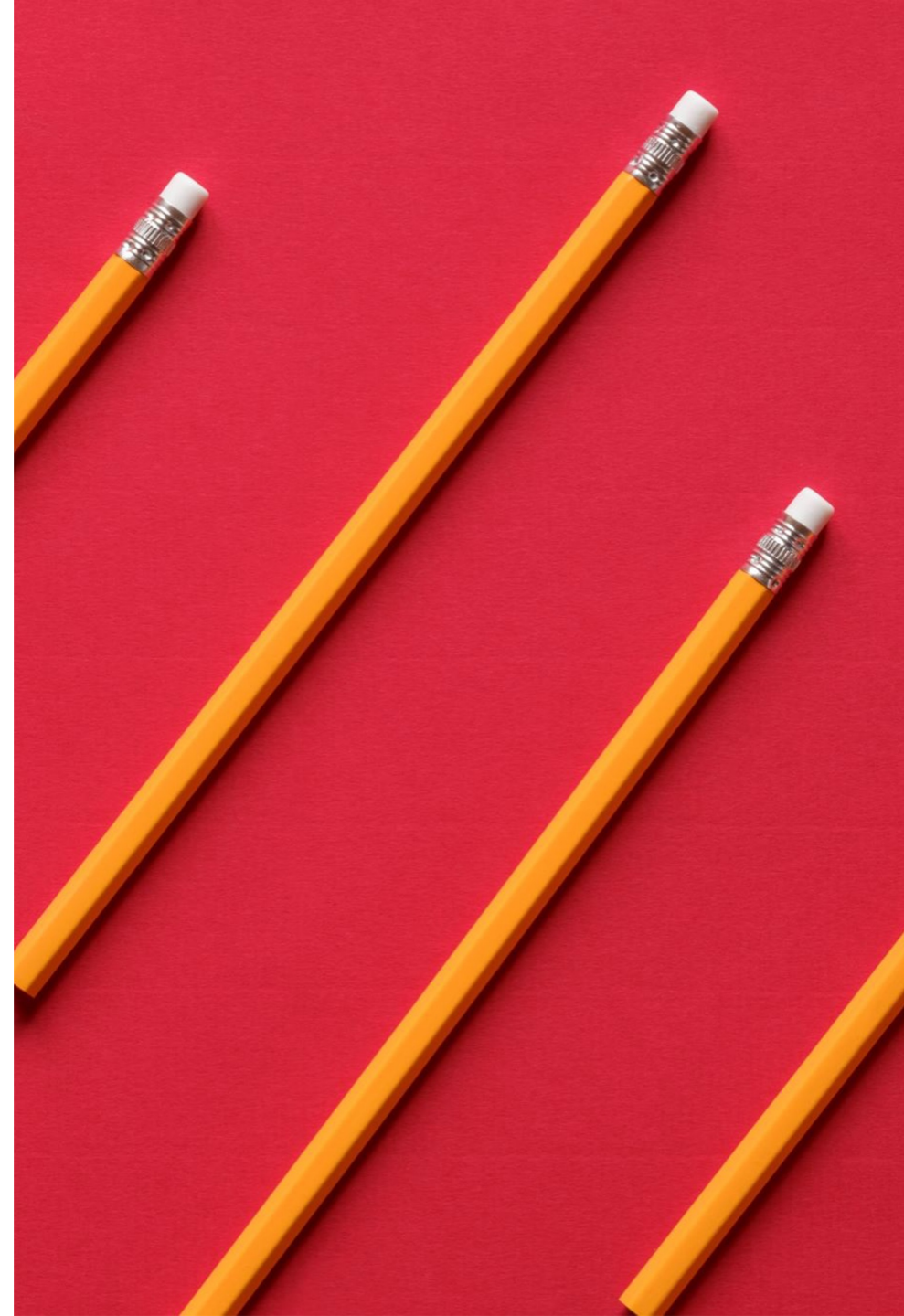


Morphological knowledge and L2 literacy development

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Structure of the workshop

- We will propose a series of activities aimed at reflecting on the relationships between morphological knowledge and the development of L2 literacy. We will consider both:
 - word reading
 - text comprehension
- Specifically, we will disentangle the different dimensions of morphological knowledge and will try to understand how these abilities impact reading and text comprehension
- We will review some of the main results obtained by the research in L1 and L2
- We will propose and discuss some idea for pedagogical intervention aimed at boosting morphological knowledge in L2

<https://www.wooclap.com/BILITERACY>

Morphological knowledge, a first definition

Morphological knowledge generally refers to what speakers know or perceive about the internal structure of words

Ex. Engl. *Familiar-ize*, Fr. *Fill-ette*, It. *Organizza-zione*

Morphological knowledge has to be understood as an ‘umbrella’ term (Nagy, Carlisle and Goodwin, 2014), which entails

- Different dimensions
- Different degrees of implicitness / explicitness

These different dimensions of morphological knowledge promote literacy in different ways

The impact of morphological knowledge on (L2) literacy

FORMAL LEVEL

→ i.e., orthographic level. Information about how words are spelled or read

SEMANTIC LEVEL

→ Information about complex words' meaning

SYNTACTIC LEVEL

→ Information about complex words' syntactic properties

speakers / readers need to be able to 'extract' the information at the different levels and to integrate it during word or sentence processing

The building blocks on reading fluency and comprehension (Grabe 2009)

Spreading of activation ↑

LOWER LEVEL PROCESSING

Meaning proposition encoding

Syntactic processing

Word recognition and lexical access

Orthographic and phonological processing

HIGHER LEVEL PROCESSING

Understanding text structure

Making inferences

Comprehension monitor

The impact of morphological knowledge on (L2) literacy

FORMAL LEVEL

→ i.e., orthographic level. Information about how words are spelled or read

SEMANTIC LEVEL

→ Information about complex words' meaning

SYNTACTIC LEVEL

→ Information about complex words' syntactic properties

TEXTUAL LEVEL

→ independent contribution of morphology to text comprehension (once the other factors are controlled)

speakers / readers need to be able to 'extract' the information at the different levels and to integrate it during word or sentence processing

different nature of morphological knowledge

Explicit knowledge

- what we consciously know about word structure
- a knowledge that can be used strategically
- developed through explicit instruction and conscious effort
- relies on the declarative memory system

=> morphological awareness

Implicit knowledge

- an unconscious, tacit knowledge
- a knowledge that is not used deliberately, but is activated during language processing
- developed through exposition to the language, with time and experience with the language
- relies on procedural memory system

=> morphological processing

morphological awareness vs morphological processing

“the boundary between morphological processing and morphological awareness has not often been discussed in the research literature on morphological awareness; nor is it necessary an easy boundary to draw”.

(Nagy, Carlisle Goodwin 2014)

- However, considering literacy development in L2, this distinction is relevant, as it is acknowledged that L2 is generally less implicit (and less automatized) than L1, especially if it is developed within a formal setting
- Because SLA research indicates that these two dimensions of knowledge support one another, it is important to understand under which conditions such a cooperation between explicit and implicit is more likely to take place.

The impact of morphological knowledge at the formal level

ACTIVITY 1:

Reading simple and complex words in an opaque writing system

**Look at these French pseudo-words.
Can you describe their structure?
Which consequences for their reading?**

Chantine	Chintine	Chintime
Chature	Choture	Chotore
Chaudeur	Chaideur	Chaidour
Fleuroir	Fleutoir	Fleutior
Froiderie	Frouderie	Froudorie
Gantoir	Gontoir	Gontior
Granderie	Granterie	Grantorie
Hauture	Houture	Houtore

Decoding simple and complex words in an opaque writing system

- Word decoding in languages with opaque orthographies (such as English or French), where the relationship between grapheme and phoneme is not consistent, might rely on morphological knowledge => **morphophonemic orthographies and morphological decoding**
- The morpheme is a unit of 'intermediate' grain size which proves useful in processing all complex words, especially when whole-word processing is unavailable (new or unfamiliar words or non words)
- If learners can recognize morphemes (bases or affixes), and can segment a word in sublexical units, they can decode more efficiently and rapidly
- Consider also: *nation, nutrition, conversation* => we do not need to decode letter-by-letter the *-tion* sequence, if we are familiar with it
- Think about how you would pronounce a (prefixed) word such as *dishonor*

Morphology and word recognition in French

Quémart, Casalis & Ducan, 2012

COMPLEX B+S+	PSEUDOCOMPLEX B+S-	PSEUDOCOMPLEX B-S+	SIMPLE B-S-
pêcheur 'fisherman'	barque 'small boat'	jan vier 'January'	brousse 'bush'
poirier 'pear tree'	tourte 'pie'	bate au 'boat'	canapé 'sofa'
bandage 'bandage'	fourmi 'ant'	chi enne 'female dog'	domino 'domino'

- Words with comparable length and frequency
- Lexical decision task
- Reaction times and % of errors
- Three groups of participants (3rd & 4th grades)

- **Both bases and suffixes facilitated word reading accuracy and speed across all grades (same results with pseudowords)**

ACTIVITY 2:

Writing simple and complex words in an opaque writing system

heal

health

magic

magician

sane

sanity

muscle

muscular

Vineyard

vin+yard (yard full of vines)

**Look at the following words.
Which is the contribution of
morphology to their spelling?**

Writing simple and complex words in an opaque writing system

heal

health

magic

magician

sane

sanity

muscle

muscular

Vineyard

vin+yard (yard full of vines)

Look at the following words.
Which is the contribution of
morphology to their spelling?

**Morphemes with different
pronunciations in different
contexts maintain a constant
spelling**

Spelling simple and complex words in an opaque writing system

COMPLEX WORDS	SIMPLE WORDS
<i>bl<u>a</u>ncheur</i> (whiteness), <i>m<u>a</u>ngeoire</i> (trough)	<i>guir<u>a</u>nde</i> (garland), <i>l<u>a</u>ngouste</i> (crayfish)
<i>ch<u>a</u>udiere</i> (boiler), <i>ch<u>a</u>uffage</i> (heating)	<i>ca<u>u</u>chemar</i> (nightmare), <i>na<u>u</u>frage</i> (shipwreck),
<i>ba<u>i</u>gnade</i> (bathing), <i>l<u>a</u>ideur</i> (ugliness), <i>l<u>a</u>inage</i> (woolen garment), <i>l<u>a</u>itage</i> (dairy product)	<i>bed<u>a</u>ine</i> (paunch); <i>cors<u>a</u>ire</i> (pirate), <i>fa<u>l</u>aïse</i> (cliff), <i>pun<u>a</u>ïse</i> (bug)

Spelling simple and complex words in an opaque writing system

Encoding morphologically complex words:

[e]: <ié>; <ier>; <iez>

morphological series: *poir**ier***, *abricot**ier***, *ceris**ier***, *pomm**ier***, *figu**ier***, etc.

Reading simple and complex words in a **transparent** writing system

- The role of morphological knowledge on word decoding in a language with a transparent consistent orthography-to-phonology mappings as those of Italian or Spanish is less straightforward.
- In Italian efficient word decoding can be achieved through grapheme-phoneme conversion rules (Burani et al. 2008, Marcolini et al. 2011)
- Morphology does not help to determine the pronunciation of words in Italian (Nagy et al. 2014) => decoding unknown words

Morphology and word recognition in French

Burani, Marcolini, De Luca, Zoccolotti (2007)

words		pseudo-words	
COMPLEX	SIMPLE	COMPLEX	SIMPLE
<i>Tristezza</i> 'sadness'	<i>Indirizzo</i> 'address'	<i>sonnezza</i> 'sleepyness'	strodasa
<i>Pescatore</i> 'fisher'	<i>Stipendio</i> 'salary'	<i>stelloso</i> 'starrous'	stolleda
<i>Gelataio</i> 'ice cream man'	<i>Scaffale</i> 'shell'	<i>vetrezza</i> 'glassness'	vatrezzo
<i>Villetta</i> 'cottage'	<i>Cammello</i> 'camel'	<i>pallismo</i> 'pallism'	pillosta
<i>Dentista</i> 'dentist'	<i>Vicenda</i> 'event'	<i>donnista</i> 'womanist'	dennosto

Morphology and word recognition in French

Burani, Marcolini, De Luca, Zoccolotti (2007)

- Words with comparable length and frequency
- Reading aloud task
- Naming latencies
- Four groups of participants (skilled and young readers, dyslexics, adults)
- **Complex pseudowords:** All groups read faster and more accurately complex pseudo-words (composed of root and suffix) than simple ones
- **Complex words:** Unlike skilled young and adult readers, both dyslexics and younger children benefited from morphological structure also in reading aloud words

TO SUM UP

Morphological decoding

Morphological decoding, the ability to rely on morphemes in order to pronounce and spell a word correctly => **Ability at the formal level**

- **EXPLICIT:** Decoding (or spelling) new or unfamiliar words by analysing them into component morphemes
- **IMPLICIT:** Recognizing (identifying) or writing known words more quickly and easily because of stronger, redundant links both between not only the orthographic and the phonological representations of a word but also between the morphological and phonological representations (Nagy, Carlisle, Goodwin 2014)

For experienced and skilled readers, it is a tacit, unconscious knowledge > implicitly acquired > it relies on procedural memory (Kuo & Anderson 2008; Ullman 2001)

How does morphological decoding support literacy development?

- Morphological knowledge contributes to word identification through chunking, which reduces the working memory demands during complex word recognition (Zhang, Lin, Wi & Anderson, 2013)
- Complex words (prefixed, suffixed, compound items) tend to be long and letter-by-letter decoding might not be efficient => the most accomplished students read multisyllabic words by chunking.

Engl. *Interestingly* (*interest.ing.ly*)

It. *Deindustrializzazione* (*de.industri.al.izza.zione*)

Fr. *Anticonstitutionnellement* (*anti.constitu.tion.nell.ement*)

How does morphological decoding support literacy development

- When children become skilled readers, they decode (morphologically complex) words more rapidly and more accurately
- When the decoding process is fully automatized, it is performed with no or reduced effort
- When fewer cognitive resources are needed at the decoding level, more cognitive resources might be allocated for other (higher) processes, as reading implies performing different processes in parallel. Children struggling at the decoding level are indeed less likely to succeed in getting into text meaning.

The impact of morphological knowledge at the semantic level

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

Participants are presented with a series of low-frequency morphologically complex words and are asked to choose the definition that best represents the meaning of the complex word among a set of given options

What does knowledgeable mean?

- a) without having a lot of information
- b) capable of having a lot of patience
- c) without having a lot of patience
- d) capable of having a lot of information

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

- **What is the point of using low-frequency complex words?**
- **How are the definitions (a, b, c, d) created?**
- **What kind of morphological knowledge is necessary to perform this task?**
- **What is the aim of this task?**

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

- **What is the point of using low-frequency complex words?**

Low-frequency words are more likely to be unfamiliar (or unknown) to pupils, therefore participants need to reflect on word structure and on the meaning of the sub-lexical components

- **How are the definitions (a, b, c, d) created?**

They are systematically related either to the base morpheme only, the suffix only, or neither.

The correct definition is a higher frequency synonym (or a paraphrase) of the most common definition of the word (of the base and affix).

- **What kind of morphological knowledge is necessary to perform this task?**

Pupils need to recognize word's structure, to access the meaning of the base and of the affix and to retrieve the synonyms (or paraphrase) for the base and the suffix

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

- What is the aim of this task?

Objective: Assess students' ability to recognize the meaning of the base and of the suffix and to find a synonym for it.

=> **Activity that activates knowledge at the formal and semantic level**

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

Que signifie immensité?

'What does immensity mean'?

- a) le caractéristique d'être très loin ('the characteristic of being very far') ❌
- b) un endroit très grand ('a very big place') ❌
- c) un endroit très loin ('a very far place') ❌
- d) la caractéristique d'être très grand ('the characteristic of being very big') 👍

ACTIVITY 3:

Lexical knowledge test (Deacon et al. 2017)

Cosa significa passivismo?

'What does passivism mean'?

- a) il comportamento/atteggiamento di chi si crede superiore agli altri ('The behaviour of those who believe themselves superior to others.') ❌
- b) una persona che crede di essere superiore agli altri ('A person who believes himself to be superior to others.') ❌
- c) il comportamento/atteggiamento di chi non prende l'iniziativa ('the behaviour of those who do not take the initiative') 👍
- d) una persona che non prende mai l'iniziativa ('a person who does not take the initiative') ❌

TO SUM UP

Morphological analysis

Readers can extract information about **word properties at the semantic level**

The ability to infer the meaning of morphologically complex words relying on the meaning of their component morphemes => **Morphological analysis**

EXPLICIT: inferring the meaning of a new word on the basis of meaning of base and the meaning of the affix

IMPLICIT: accessing information about the meaning of a word more quickly, and efficiently because of stronger, redundant links between the meaning of sublexical components and whole word meaning DA CONTROLLARE

How does morphological analysis contribute to reading?

- At the level of **word meaning**, morphological knowledge should make it easier to access, infer, and remember the meaning of morphologically complex words.
- Morphologically complex words are one of the hallmarks of academic language: whether specific (e.g. *photosynthesis*) or general (e.g. *analytic*) content.
- Nagy & Anderson 1984 estimate that 60% of the unfamiliar words that students encounter in texts from Grade 3 through 9 can be broken into morphemes that give substantial information on whole word meaning.

Pseudoword definition task (Nunes et al. 2006)

Morphological problem solving (Anglin 1993)

Children are asked to explain the meaning of pseudo-words, composed of a real stem and one or more affixes in a novel combination. Words can either be presented in a sentence or in isolation:

Pseudoword definition task (Nunes et al. 2006)

He was full of afraidness of the sea

Morphological problem solving (Anglin 1993)

foundationless, foundationlessness

French. *macroniste* 'supporter of President Macron'

How does morphological analysis contribute to reading?

- **morphological problem solving:** inferring the meaning from analysis of the composite morphemes
- Anglin (1993) found that fifth graders used **morphological problem solving** more extensively and effectively than first or third graders.
- The support provided by morphological structure is hypothesized to stem from **conscious** morphological problem solving and from building lexical representations over time.
- As students come to understand not only why some words are spelled the way they are, but also why they mean what they do, stronger, more redundant links among the orthographic, phonological, and semantic representations (=morphological) of words are established in their mental lexicon.

The impact of morphological knowledge at the syntactic level

ACTIVITY 4

Non-word suffix choice test (Tyler & Nagy 1989; Nagy et al. 2003)

Participants are asked to complete a sentence with a missing word by choosing from four words with the same stem but different derivational suffixes.

Non-words control for general vocabulary knowledge and require students to think about the grammatical purpose of the suffix.

What a completely _____ idea.

- a) tribacious
- b) tribaism
- c) tribacize
- d) tribation

ACTIVITY 4

Non-word suffix choice test (Tyler & Nagy 1989; Nagy et al. 2003)

Test of syntactic awareness (Singson, Mahony, and Mann 2000)

- What is the point of using morphologically complex pseudowords (non existing bases)?
- How are the different options (a, b, c, d) created ?
- On which basis can you rule out the wrong options?
- What is the aim of this activity?

ACTIVITY 4

Non-word suffix choice test (Tyler & Nagy 1989; Nagy et al. 2003)

Test of syntactic awareness (Singson, Mahony, and Mann 2000)

What is the point of using morphologically complex pseudowords?

To reduce the effect of vocabulary knowledge

What is the aim of this activity?

Assessing the sensitivity to syntactic properties of derivational suffixes

ACTIVITY 4

Non-word suffix choice test (Tyler & Nagy 1989; Nagy et al. 2003)

Dopo una lunga battaglia, i soldati infine si arresero a causa della _____.

(‘After a long battle, the soldiers finally surrendered due to _____.’)

- a) ruvante ❌
- b) ruvabile ❌
- c) ruvezza 👍
- d) ruvista ❌

ACTIVITY 4

Non-word suffix choice test (Tyler & Nagy 1989; Nagy et al. 2003)

Parmi les multiples types de crimes, celui-ci se caractérisait par sa _____.

(‘Among the many types of crimes, this one was characterized by its _____.’)

- a) chimpeuse 
- b) chimpeté 
- c) chimpible 
- d) chimpoyer 

How does morphological analysis contribute to reading?

- Morphological knowledge contributes to literacy at the **syntactic level** (Nagy et al. 2014) => the reader can use the affix to recognize the part of speech of an unknown word and, thus, its role in a sentence.
 - Words ending in *-ion* will tend to function as nouns and be modified by adjectives (e.g., a sudden realization)
 - Words ending in *-ize* function as verbs and are modified by adverbs (suddenly realized)

How does morphological analysis contribute to reading?

- **EXPLICIT:** inferring the part of speech of a new word on the basis of the suffix or creating a new suffixed word to meet syntactic demands of a sentence
- **IMPLICIT:** Accessing information about the part of speech of a word more quickly because of stronger, redundant links between the form of the word and its part of speech

How does morphological analysis contribute to reading?

Knowledge of the syntactic functions of derivational suffixes may be especially important for understanding academic language because derivational suffixation is one of the main ways that academic language achieves its **informational density (both semantic and syntactic information coded at the word level)**

He decided to leave, and that surprised us

His decision to leave surprised us

ACTIVITY 5:

Test of morphological structure (Carlisle 2000)

Participants are presented orally with a clue word followed by an incomplete sentence. They are then asked to complete the orally sentence with the correct morphologically connected form.

1) *With that statement I could not* _____

Clue: **agreeable**, expected answer: **agree**

2) *Selling lemonade in summer is* _____

Clue: **profit**, expected answer: **profitable**

ACTIVITY 5: Test of morphological structure (Carlisle 2000)

What is the difference between the two tasks?

Which one is more challenging according to you? Why?

What is the aim of this activity?

ACTIVITY 5:

Test of morphological structure(Carlisle 2000)

Objective: evaluating the ability to recognize the morphological relationship among complex words (words belonging to the same morphological family). Specifically, students are asked to

Extract the base from a complex word => **Relational knowledge**

Produce a derived word from the base => **Distributional knowledge** (Tyler & Nagy)

Students need to know which affix can be combined with a specific root (restrictions)

ACTIVITY 5:

Test of morphological structure (French)

1) *L'or est un _____ beaucoup plus précieux que l'argent*

('Gold is a much more precious _____ than silver ')

Clue: **métallique** ('metallic'), expected answer: **métal** ('metal')

2) *Avant de prendre une décision, le juge devra _____ les témoins.*

('before making a decision, the judge will have to _____ the witnesses')

Clue: **interrogation** ('to questioning'), expected answer: **question** ('question')

ACTIVITY 5:

Test of morphological structure (Italian)

1) *È severamente vietato _____ in quel tratto di lago*

(‘It is strictly forbidden to _____ in that part of the lake ’)

Clue: **pescatore** (‘fisherman’), expected answer: **pescare** (‘fish’)

2) *In Irlanda la _____ di patate è molto diffusa.*

(‘In Ireland, the _____ of potatoes is widespread’)

Clue: **coltivare** (‘to cultivate’), expected answer: **coltivazione** (‘cultivation’)

ACTIVITY 6

word analogy (Nunes et al. 1997; Kirby et al. 2012)

Participants hear the first pair of words (A:B), followed by the first word of the second pair (C). They are then asked to complete the pattern by providing the missing word of the second pair

work : worker :: write : _____

anger : angry :: strength : _____

What is the difference between the first and the second analogy?

ACTIVITY 6

word analogy (Nunes et al. 1997; Kirby et al. 2012)

Participants hear the first pair of words (A:B), followed by the first word of the second pair (C). They are then asked to complete the pattern by providing the missing word of the second pair

cloche : *clochette* = *cuve* : X

X = *cuvette*

'bell : small bell = cistern : little cistern'

ignorer : *ignorance* = *espérer* : X

X = *espérance*

'to ignore : ignorance = to hope : hope'

bavarder : *barvadage* = *apprendre* : X

X = *apprentissage*

'to chat : chatter = learn : learning'

(Casalis, Deacon & Pacton 2011)

Subject must recognize a morphological relationship in the first pair of words and then apply this relationship to the third word to generate the appropriate word to solve the analogy

TO SUM UP

Relational knowledge

Objective: to verify students' ability to recognize the formal and semantic relationship among two words and produce an equivalent relationship among other words

TO SUM UP

Relational knowledge

structural or relational knowledge, the ability to recognize the morphemic structure of words, to reflect upon and manipulate that structure, to recognize morphological relationships among words => knowledge at the formal, semantic and syntactic levels are involved

- **EXPLICIT:** Metalinguistic awareness about words structure. Knowledge acquired through explicit instruction, is conscious and can be accessed and manipulated deliberately (Duncan, Casalis & Colé 2009; Kieffer & Lesaux 2012; Kuo & Anderson 2008, Ullman 2001)
- **IMPLICIT:** Morphological information is used to organize the mental lexicon in terms of morphological families and series, to facilitate lexical access

ACTIVITY 7: Relational Awareness Task (Mahoney et al. 2000)

Participants are given word pairs and are asked to decide whether the two words are related to each other

Does “magician” come from “magic”?

Does “badminton” come from “bad”?

Objective: assessing the child’s implicit ability to determine if word pairs are morphologically related

ACTIVITY 7 bis: complex words and complex pseudo-words

anello / anellino vs. burro/ burrone

(ring / little ring vs. butter / cliff/ravine)

Table / tablette vs. bague / baguette

(table / little table vs. ring / loaf of bread)

How does structural / relational knowledge impact reading?

Through structural knowledge, the mental lexicon is organized according to morphological parameters: words are connected through their common base (e.g., *happy, happiness, happily, unhappy, unhappiness, etc*) and their common affix (e.g., *happiness, sadness, loneliness, etc.*)

=> **More efficient access to word meaning**

=> Spreading of activation among words belonging to the same morphological series and family during processing

TO SUM UP

Distributional knowledge

Distributional knowledge => students' knowledge that affixes select specific bases (distributional restrictions)

This ability is linked to vocabulary development

DA TERMINARE

ACTIVITY

Verbal Suffix Knowledge (Schmitt & Meara 1997; Jeon 2011)

Participants are given
a prompt word

a list of some of the most
common derivational suffixes

They are then required to choose
as many suffixes as they think are
attachable to the prompt word



Eat

~able ~age ~al ~ance/ence ~ed
~ee ~er/or
~ing ~ion ~ive ~ly ~ment ~s ~ure

The impact of morphological knowledge on (L2) literacy

FORMAL LEVEL

→ Morphological decoding

SEMANTIC LEVEL

→ Morphological analyses

SYNTACTIC LEVEL

→

TEXTUAL LEVEL

→ independent contribution of morphology to text comprehension
(once the other factors are controlled)

Abilities such as structural / relational knowledge rely on different levels

Morphological knowledge and L1 literacy

- Effect of morphological knowledge on **monolingual** reading development (Verhoeven & Perfetti 2017 on 17 languages)
- Morphological knowledge has been identified as a strong correlate of reading achievement in L1 reading (Carlisle 1995, 2000; Nagy et al. 2003; 2006): children's knowledge about word structure correlates with reading abilities and text comprehension skills
- Longstanding evidence of a robust association between morphological knowledge and literacy skills such as word reading, spelling and reading comprehension

Morphological knowledge and L2 literacy

- Effect of morphological knowledge on **L2** reading development (Deacon, Wade-Woolley & Kirby 2007, Wang, Ko & Choi 2009)
- A growing body of evidence has shown that morphological skills play a role in reading in L2 reading too (e.g., Kieffer & Lesaux 2012; Kieffer, Biancarosa & Mancilla-Martinez, 2013 see Jeon & Yamashita 2014 for review)
- Little research on the role of morphological knowledge in bilingual children's reading comprehension skills in languages other than English. Some recent studies on other languages include:
 - Casalis, Deacon & Pacton 2011; Angelelli et al. 2017; Suárez-Coalla, Martínez-García & Cuetos 2017; Vernice & Pagliarini 2018; Oliveira et al. 2020

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Teaching morphological awareness

- Does morphological instruction have an impact on literacy achievement?
- Can morphological awareness be taught?
- What activities can be used to boost morphological awareness?

Why teach morphology?

Meta-analyses by Reed (2008), Bowers, Kirby, and Deacon (2010), Carlisle (2010), Goodwin & Ahn (2010) show the importance of morphological instruction at different levels of literacy achievement:

- ✓ Reed (2008): effects of morphological instruction on word identification, spelling, and vocabulary development
- ✓ Bowers, Kirby and Deacon (2010): effects of morphological instruction at the sublexical, lexical, and supralexical levels
- ✓ Goodwin & Ahn (2010): effects of morphological instruction on phonological awareness, morphological awareness, vocabulary, reading comprehension and spelling

Morphological instruction turns out to be particularly effective for children with reading, learning, or speech and language disabilities, English language learners, and struggling readers, suggesting the possibility that morphological instruction can remediate phonological processing challenges.

How to teach morphology?

Carlisle (2010) identifies four different approaches to morphological instruction:

- 1) Instruction and activities designed to **heighten students' awareness of the morphological structure of words**
- 2) Teaching the **meanings of affixes and base words**, either drawing words and affixes from particular texts or selecting affixes and base words that represent morphological principles or affix families
- 3) Fostering **morphological problem solving** (Anglin 1993), by providing options for analysis of unfamiliar words in new contexts => implies the use of activities that push students to think about how the constituent morphemes contribute to a word's meaning or grammatical **role**
- 4) Instruction in and application of a **strategy of morphological analysis** intended to help students work out the meanings of unfamiliar words as they read.

How to teach morphology?

Where to start?

Think about morphological contents: which word and affix types should we use to teach morphology?

Factors worth considering:

- ✓ transparency (both formal, e.g., It. *comprimere* - *compressione* and semantic, e.g.: *bara-barella* 'coffin - stretcher')
- ✓ frequency
- ✓ frequency in the academic contexts (e.g. It. *-ico* such as in *teorico* 'theoretical' versus *-oso* such as in *cremoso* 'creamy')
- ✓ affix productivity
- ✓ etymology (e.g., Latin and Greek roots, such as *idr-* 'hydr-' in *idrico*, *idrante* 'hydrant')

How to teach morphology?

Instruction in morphology can be explicit, but should always be anchored to a meaningful text, since decontextualizing activities can be demotivating

- ✓ **Providing a text** can help pupils appreciate the importance of morphological knowledge as a meaning-making strategy

Starting with a text



A TUTTO GAS

IL PRIMO RESPONSABILE DEL CAMBIAMENTO CLIMATICO È UN GAS, L'ANIDRIDE CARBONICA. SE NELL'ARIA C'È TROPPO ANIDRIDE CARBONICA, LA COLPA È DEGLI ESSERI UMANI. PER QUESTO LA TERRA SI STA RISCALDANDO.

IL CICLO NATURALE

L'anidride carbonica (CO₂) non è velenosa: fa parte dello strato d'aria che circonda la Terra. Questo strato si chiama atmosfera. L'anidride carbonica che è nell'aria è quella che viene espirata da persone e animali, emessa dalle piante quando marciscono o che si alza dagli oceani. Per millenni la quantità di CO₂ nell'atmosfera è rimasta più o meno la stessa. C'era un equilibrio: piante e mari assorbivano quasi tutta quella che veniva emessa.

L'IMPRONTA UMANA

Da centocinquanta anni la concentrazione di anidride carbonica nell'aria è maggiore di quella che le piante e gli oceani possono assorbire. La colpa è degli esseri umani. Abbiamo turbato l'ecosistema rompendone gli equilibri e continuiamo a riversare troppi gas nell'aria. Inoltre, tagliamo alberi e disbosciamo per creare spazio a nuove terre coltivabili. Alberi e foreste scomparsi non possono più contribuire alla riduzione di CO₂ e le piante rimaste non riescono ad assorbire tutte le nostre emissioni. Ma ci riescono solo in parte, il resto si accumula nell'atmosfera.

COME SI RISCALDA LA TERRA

La presenza di anidride carbonica in sé è positiva. Senza questo gas, la vita sulla Terra sarebbe impossibile. Il gas fa in modo che la Terra possa ricevere il calore dal sole. Funziona così: il sole illumina la Terra riscaldandola, buona parte di questo calore si disperde nello spazio, ma una parte minore viene trattenuta dall'anidride carbonica e da altri gas. La CO₂ ha l'effetto di una coperta che ci tiene caldi. Più gas c'è nell'atmosfera, più il calore viene trattenuto invece di disperdersi nel cosmo. Per questo la Terra si riscalda.

GLI EFFETTI DI UN PAIO DI GRADI

Già ora in alcune zone della Terra, a causa del riscaldamento globale, si registrano lunghi periodi in cui piove troppo poco. Campi e foreste si inaridiscono. Inoltre, si sciolgono i ghiacci di polo Nord e polo Sud. L'acqua che si scioglie dai ghiacciai finisce negli oceani e il livello del mare aumenta. Prima o poi alcune città costiere come New York o intere isole potrebbero essere sommerse. Ma ci sono anche altri problemi: con lo scioglimento dei ghiacci, ci sono meno superfici bianche che riflettono i raggi del sole. Così il clima cambia sempre più in fretta.

Starting with a text

Read the text and find sentences which matching with the following ones:

- a. L'anidride carbonica è una delle principali cause che fa cambiare il clima.
- b. Negli ultimi centocinquant'anni sempre più anidride carbonica si è concentrata nell'aria.
- c. Gli alberi e le foreste che non ci sono più non possono più aiutare a ridurre il livello di CO₂.

Starting with a text

Read the text and find sentences which matching with the following ones:

a. L'anidride carbonica è una delle principali cause che fa cambiare il clima.

Il primo responsabile del cambiamento climatico è un gas, l'anidride carbonica.

b. Negli ultimi centocinquant'anni sempre più anidride carbonica si è concentrata nell'aria e il suo assorbimento non è più possibile.

Da centocinquant'anni la concentrazione di anidride carbonica nell'aria è maggiore di quella che le piante e gli oceani possono assorbire.

c. Gli alberi e le foreste che non ci sono più non possono più aiutare a ridurre il livello di CO₂.

Alberi e foreste scomparsi non possono più contribuire alla riduzione di CO₂.

Starting with a text

Let's look back at some of the words we found in the sentences of the previous activity, for example:

Negli ultimi centocinquant'anni sempre più anidride carbonica si è concentrata nell'aria e il suo assorbimento non è più possibile.

Da centocinquant'anni la concentrazione di anidride carbonica nell'aria è maggiore di quella che le piante e gli oceani possono assorbire.

Can you tell me what do these sentences have in common and what's different?

Can you do the same with all the sentence pairs that we found?

Starting with a text

cambiare

cambiamento

clima

climatico

concentrare

concentrazione

assorbire

assorbimento

ridurre

riduzione

emettere

emissione

Starting with a text

Fill in the gaps in this text. Clue words are given, but you will need to transform them into the correct derived word.

definire – rafforzare – esercitarsi – ammettere – investire – osservare – operare – coinvolgere – organizzare – avvistare – ragionare – visualizzare – rapire – collegare – approvare

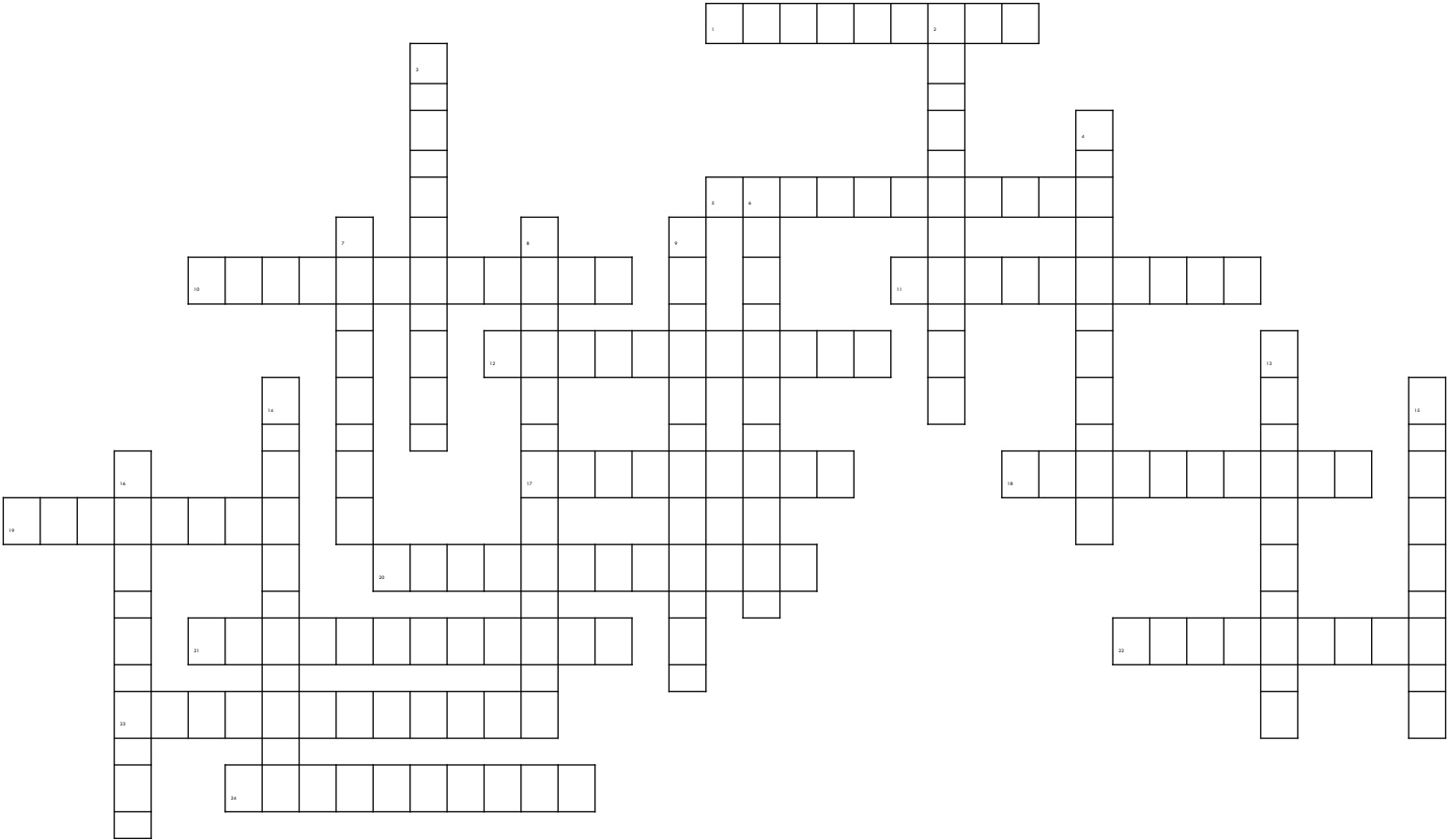
La Marina militare degli Stati Uniti ha confermato l'_____ di tre oggetti/fenomeni non identificati da parte di suoi aeroplani, avvenuti a dicembre del 2017 e a marzo del 2018. I video degli avvistamenti sono stati molto condivisi online e molti credono che si tratti di veicoli alieni. L'_____ della Marina di non essere riuscita a comprendere con certezza di che oggetti si tratti potrebbe portare ora a nuove teorie, anche se i militari invitano a non usare la parola “oggetto volante non identificato” (UFO, in inglese) per questi avvistamenti, visto il _____ che si è ormai creato tra questo termine e i cosiddetti “dischi volanti” o navi spaziali aliene e i presunti “_____ alieni”. La Marina ha definito invece gli oggetti contenuti in questi video come “fenomeni aerei non identificati”. La _____ è ritenuta la più corretta per l'avvistamento di oggetti non autorizzati in volo presenti nello spazio aereo usato per le _____ militari. Due dei tre video erano stati diffusi a metà dicembre del 2017 dalla To The Stars Academy of Arts and Science, un'_____ che ha come scopo il _____ della popolazione globale per investigare oltre i confini della scienza e applicare _____ diversi dai soliti. Pubblicati su YouTube, i video hanno ottenuto milioni di _____ e mostrano ciò che hanno registrato i sensori di due aerei militari durante un'_____. In uno dei due video, si può vedere un oggetto all'orizzonte che compie manovre piuttosto rapidamente, prima di partire ad alta velocità sorprendendo l'equipaggio. La Terra è sorvegliata da decine di satelliti in orbita per le _____, quindi un'astronave extraterrestre sarebbe probabilmente avvistata al suo arrivo, ben prima degli aerei militari.

How to teach morphology?

Morphological contents can be successfully presented through challenging activities that stimulate problem-solving skills

- ✓ **Engaging in problem-solving activities** can help pupils understanding that morphological knowledge can be used as a strategy to infer meaning of unfamiliar words

Engaging in problem solving activities



Engaging in problem solving activities

Across

1. Della nazione
5. Che si può rinnovare
10. Capacità di essere produttivo
11. Condizione di ciò che è segreto
12. Caratteristica di ciò che è complesso
17. Qualità di ciò che è stabile
18. Che si può misurare
19. Dei numeri
20. Riguardante un territorio
21. Qualità di ciò che è flessibile
22. Relativo al simbolo
23. Che può essere realizzato
24. Qualità di chi è robusto

Down

2. Caratteristica di ciò che è adeguato
3. Caratteristica di ciò che è concreto
4. Che ha molto prestigio
6. Che riguarda l'industria
7. Pieno di dubbi
8. Che si può riconoscere
9. Della superficie
13. Pieno di pericoli
14. Dell'atmosfera
15. Che è pieno di insidie
16. Di periferia

Engaging in problem solving activities

FIFA	Impersoni il tuo campione preferito! Puoi giocare in attacco, difendere la porta o impostare il gioco al centrocampo. Chi sei?	<i>attaccante, difensore, centrocampista</i>
World of Warcraft	In questo gioco, puoi cacciare i demoni, assalire i nemici, ma anche difendere e guarire le persone. Chi sei?	<i>cacciatore, assalitore, difensore, guaritore</i>
Guitar Hero	In questo gioco, puoi scegliere di suonare la chitarra, il basso o la tastiera. Oppure puoi cantare. Chi sei?	<i>chitarrista, bassista, tastierista</i>
Fortnite	In questo gioco, devi sfidare i tuoi avversari fino a quando solo uno rimarrà in vita. Gli altri giocatori sono le tue prede. Chi sei?	<i>sfidante, predatore</i>
League of Legends	In questo gioco, puoi scegliere di incantare i nemici, cacciarli o combatterli. Chi sei?	<i>Incantatore, cacciatore, combattente</i>
Grand Theft Auto	In questo gioco, sei un criminale. Ti piace rapinare e delinquere per poi scappare via a tutta velocità. Chi sei?	<i>rapinatore, delinquente</i>
Age of Empires	In questo gioco puoi esplorare nuovi territori, combattere con l'arco o usando le lance. Chi sei?	<i>esploratore, arciere, lanciatore</i>
Call of Duty	Combatti contro i nazisti durante la Seconda Guerra Mondiale, ti lanci col paracadute, spari ai nemici e prendi parte alle battaglie più importanti. Chi sei?	<i>combattente, paracadutista, sparatore</i>

How to teach morphology?

Morphological contents can be successfully presented through problem-solving activities, games and activities that involve **physical manipulation of the words => make grammar less abstract**

- ✓ **Adapt your activities whenever possible** (prepare cards / games, work in groups/teams)

Adapting games

Card games / Memory

Popular games such as Memory can be adapted, e.g.:

- provide pupils with two sets of card, one comprising bases and the other one affixes;
 - on each turn, pupils pick a card from the bases set and another one from the affix set;
 - one point is scored if the two cards can be combined together to create an existing word;
 - additional points can be given if pupils are able to explain the meaning of the word
-
- ✓ helps motivate pupils
 - ✓ makes **fixation** activities less boring
 - ✓ pushes pupils to be creative and reflect not only on structure, but also on meaning

Adapting games

Card games / Rubamazzetto

Rubamazzetto is a popular Italian card game in which players can steal each other's cards (and points) when they find identical cards on the table

A successful adaptation of the game consists in allowing pupils to steal points when they find cards with words belonging to the same morphological family (e.g., *consiglio*, *consigliare*, *consigliabile*, *consigliere*)

- ✓ strengthens children's recognition of morphological families
- ✓ can be used to make children reflect about irregularities (is *emissione* related to *emettere*?) and false friends (**example**)
- ✓ makes learning fun

Adapting games

Card games / Go Fish!

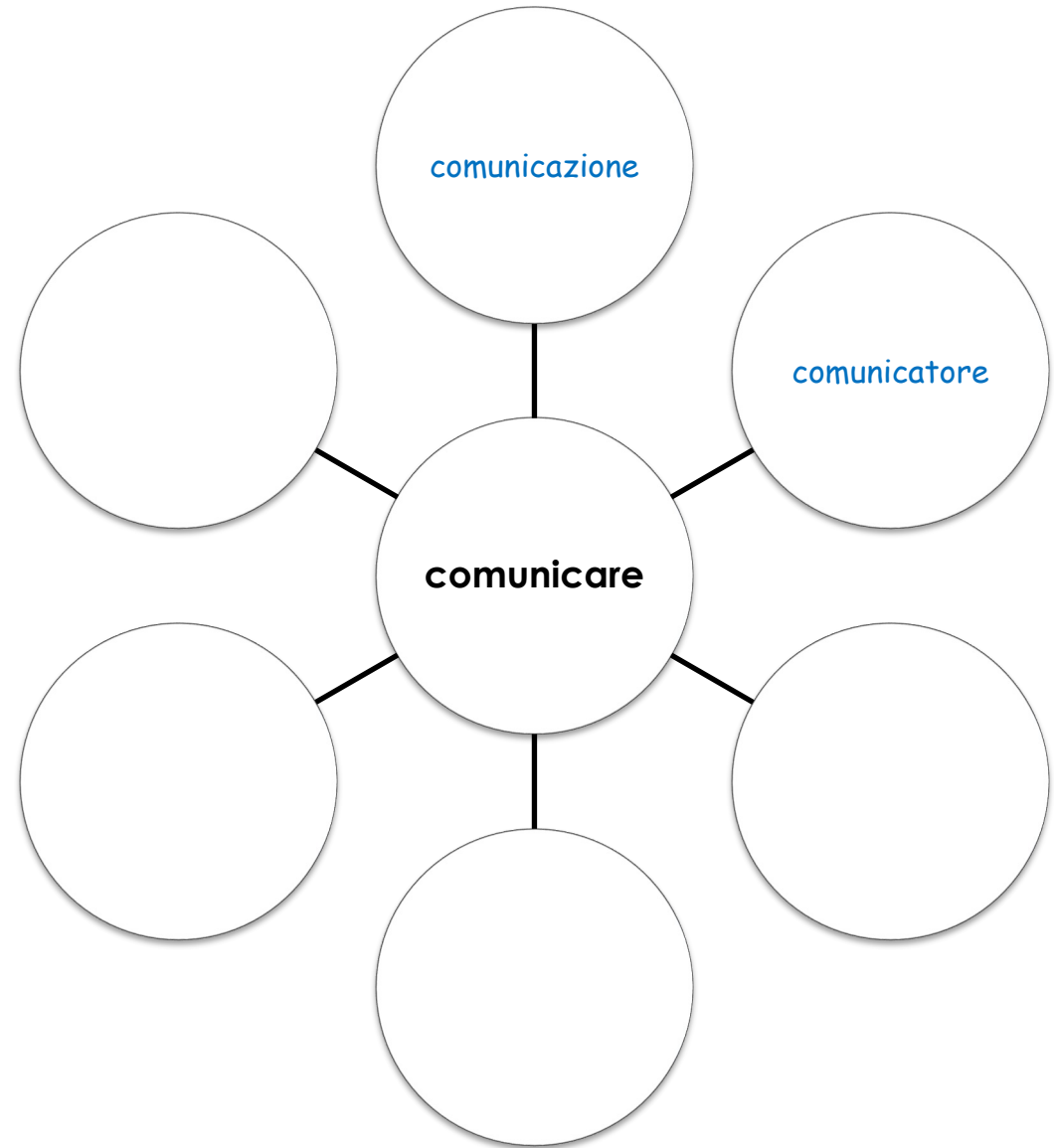
In Go Fish! players usually go around asking their opponents for cards to match the ones they already have (trying to match card ranks)

A successful adaptation of the game can make players asking for cards by providing an explanation of their meaning

To help strengthen family relationships, the objective can be collecting cards belonging to the same family

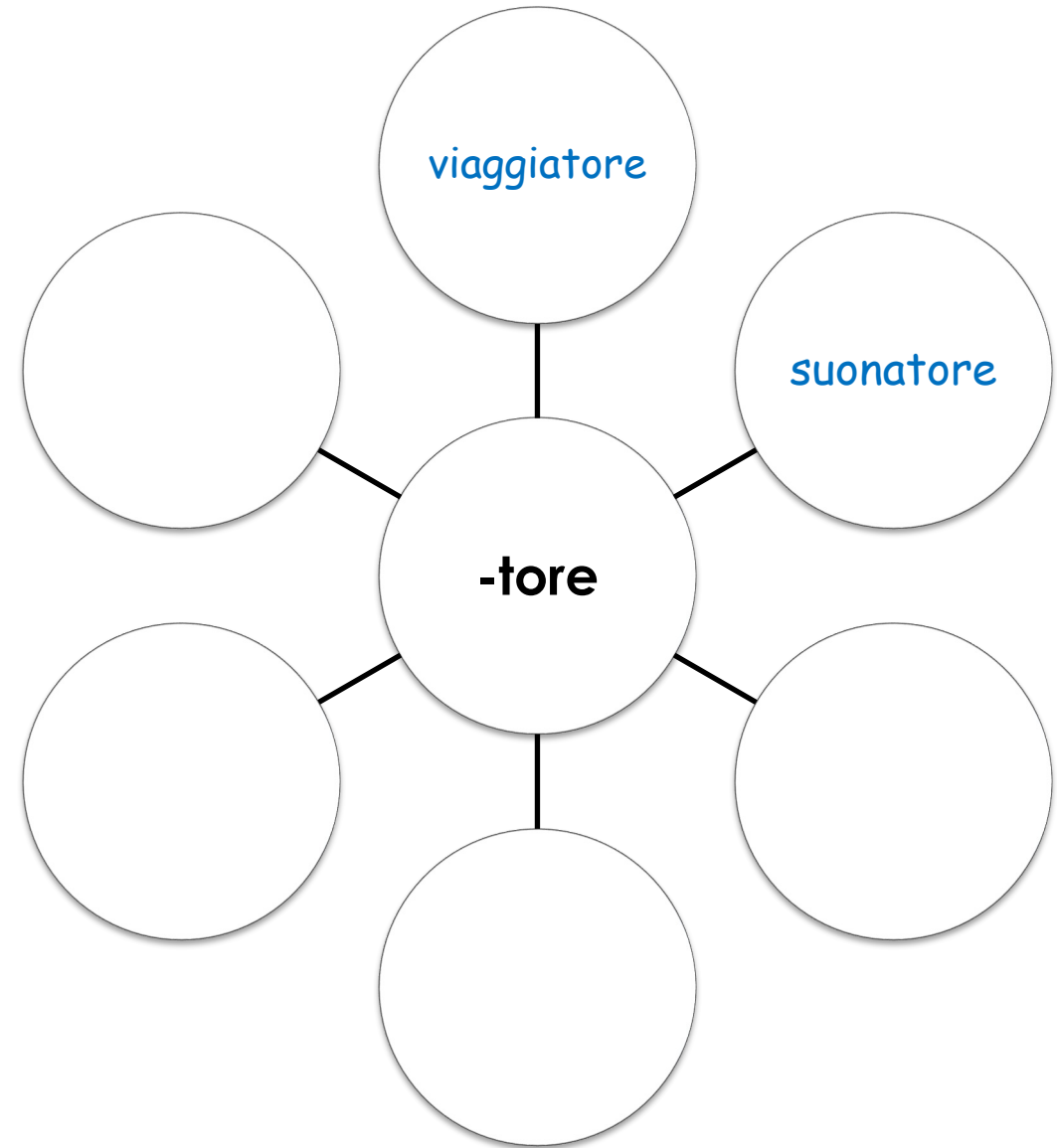
Visualizing morphological components/families

Can you think of other words built from the base **comunicare**?



Visualizing components/s eries

Can you think of other words ending in **-zione** and in **-mento**?



How to teach morphology?

Balance implicit and explicit:

- ✓ an **inductive approach** can be challenging and motivating for students => discovering morphology
- ✓ at the same time making the thinking process visible and reflecting on it helps establishing the use of morphological knowledge as a **cognitive strategy**

“To break a word down into morphemes, students need to do the following: (1) recognize that they do not know the word or do not have a deep understanding of the meaning of the word, (2) analyze the word for morphemes that they recognize (i.e., roots, prefixes, suffixes), (3) hypothesize a meaning for the word based on the word parts, and (4) check the hypothesis against the context”

Encouraging discovery

These sentences contain some grammatical errors. Can you find them and correct them?

Una tempesta magnetica manderà fuori uso le telecomunicazioni mondiali in Europa. Ad annunciare l'inevitabile sorte cui potremmo andare incontro è l'ESA (European Space Agency). Dopo lo studio del meteo spazio si è scoperta una perturbazione cosmica pronta a mandare offline smartphone, TV, sistemi come Google Maps.

Gli archeologi hanno fatto un'incredibile scoperta, un "iPhone" di 2.137 anni fa nella tomba di una donna durante un viaggio nella cosiddetta "Atlantide russa". Le civiltà preistoria possedevano una conoscenza tecnologica avanzata che è andata perduta nel corso dei secoli per poi essere riscoperta nei tempi moderni. Non possiamo escludere la possibilità che siano prove dell'esistenza di viaggiatori nel tempo, civiltà perdute o visitatori extraterrestri.

Dal governo belga, lo stop al 5G: è dannosità e si può fermare! Nei paesi dove la salute viene prima di ogni strategia economica, la vendita di bande per un servizio pericoloso per la sana pubblica non è accettabilità e si trovano forza politica e coraggio per fermarlo.

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Reflecting and consolidating knowledge

Let's now create a grid with all the words that we can think of that are related to some of the bases we found

Parola derivata	Aggettivo	Nome	Verbo
comunicare	comunicativo, comunicabile	comunicazione	
accedere	accessibile	accesso	
credere	credibile, incredibile	credenza, credibilità	
musica	musicale	musicista, musicalità	
dipendere	dipendente, indipendente	dipendenza, indipendenza	
pubblico	pubblicitario	pubblicità, pubblicazione	pubblicare, pubblicizzare
fondare	fondante	fondazione, fondatore	
nuovo	innovativo	novità, innovazione	innovare
centro	centrale	centralità	centrare

Le prossime slide le terrei di riserva

ACTIVITY 8

Production of complex words



Campana
'bell'



The simple word is orally and visually provided

Participants (children) are expected to produce the derivative after receiving the image as a stimulus



Campanile
'bell tower'

ACTIVITY 8

Production of complex words



Campana
'bell'



Participants have to recognize a morphological relationship between the object visually and orally presented in the first picture (*campana*) and the target picture that the child had to name (*campanile*).



Campanile
'bell tower'

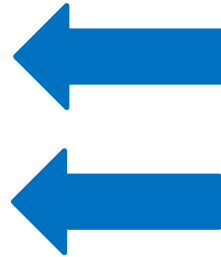


ACTIVITY

Verbal Suffix Knowledge (Schmitt & Meara 1997; Jeon 2011)

Eat

~able ~age ~al
~ance/ence ~ed
~ee ~er/or
~ing ~ion ~ive ~ly
~ment ~s ~ure



Participants are given
a prompt word

a list of some of the most common
derivational suffixes

They are then required to choose as
many suffixes as they think are
attachable to the prompt word