

**UE 7.4 -  
MÉTHODOLOGIE  
D'ANALYSE  
D'ARTICLES**

**Introduction : la structure des  
articles de recherche**

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# PRÉSENTATION DE L'UE

## Objectifs :

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Comprendre les enjeux d'une revue de littérature sur un sujet

Comprendre les liens existant entre théorie, clinique et recherche

Apprendre à construire un recueil de données dans le cadre d'une démarche scientifique

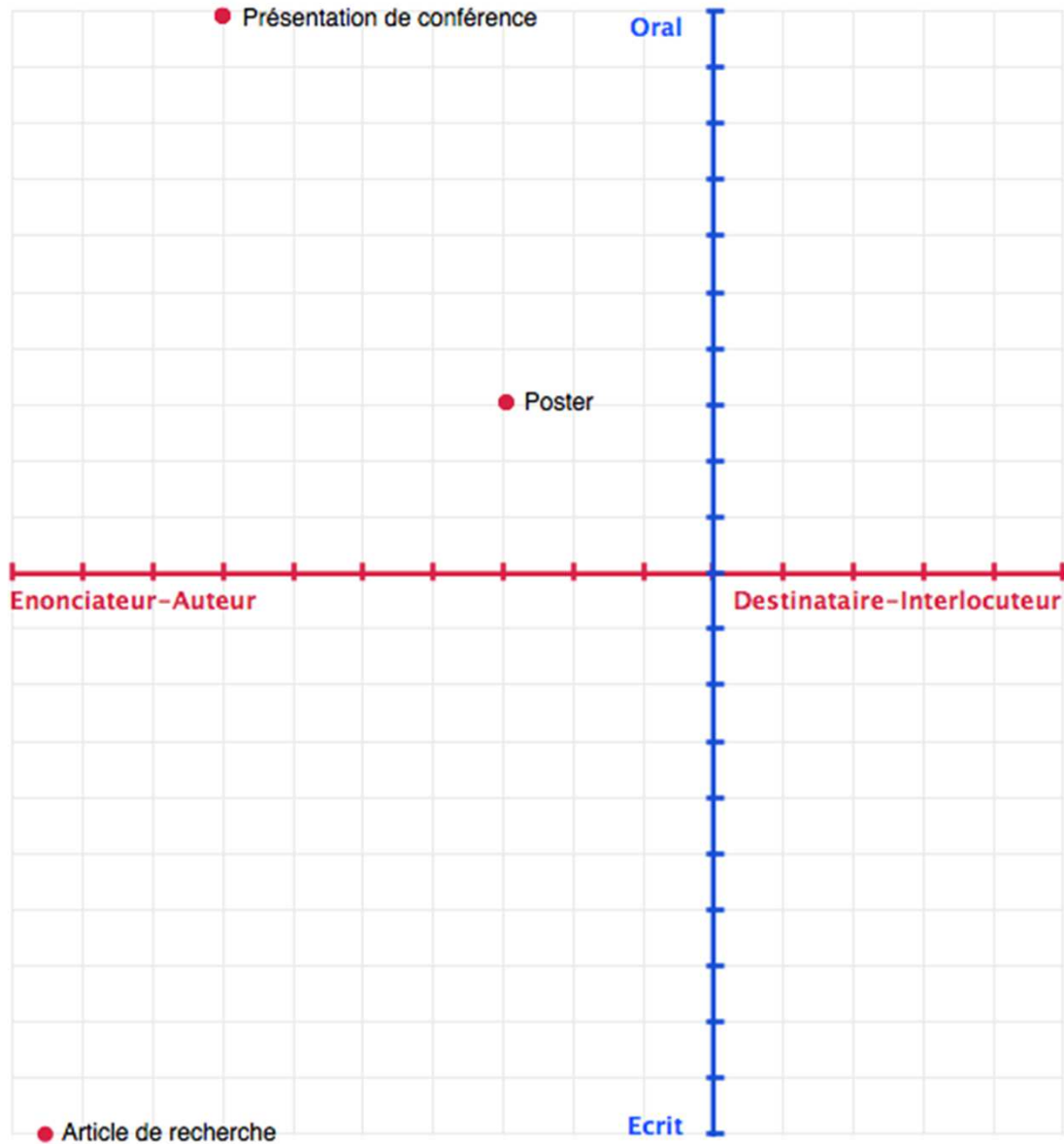
Intégrer les liens entre dimension clinique et éthique dans un projet de recherche

Créer un lexique thématique en langue anglaise

# STRUCTURE DE L'UE 2022

08/09 CMI	}	Généralités
15/09 CM2+TD		
22/09 CM3+TD	}	Présentation & analyse des différents types d'études.
29/09 CM4+TD		
06/10 CM5+TD		
13/10 CM6+TD		
20/10 CM7+TD		
21/11 TD	}	Séminaires d'évaluation : Analyse d'article
24/11 TD		
29/11 TD		

# LA COMMUNICATION SCIENTIFIQUE



# TYPOLOGIE DE L'ÉCRIT SCIENTIFIQUE

## Livres

- Monographie
- Ouvrage collectif édité
- Actes de conférence
- Ouvrages de référence

## Littérature 'grise'

- Rapports
- Documentation technique
- Thèses et mémoires
- Magazines/journaux professionnels

## Revue scientifique

- Article de recherche
- Méta-analyse
- Review
- Edito
- Opinion
- Etude de cas
- Critique d'ouvrage
- Correspondance

# L'ARTICLE DE RECHERCHE...

...est **unidirectionnel**

pragmatique & organisationnel

...utilise **une langue précise**

...fait **l'objet d'une évaluation** par ses pairs

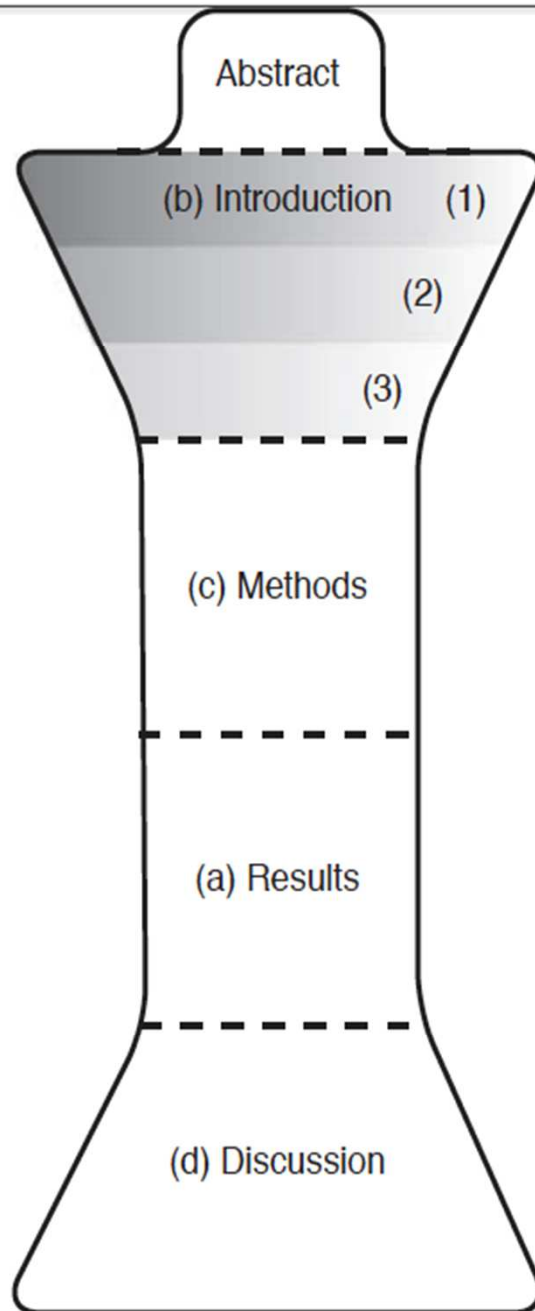
...a une **structure conventionnelle**

# STRUCTURE



Mais aussi...

.... avant & après le corps du texte



- (a) The whole structure is governed by the Results box; everything in the article must relate to and be connected with the data and analysis presented in the Results section.
- (b) (1) The Introduction begins with a broad focus. The starting point you select for your Introduction should be one that attracts the lively interest of the audience you are aiming to address: the international readers of your target journal.
- (3) The Introduction ends with a focus exactly parallel to that of the Results; often this is a statement of the aim or purpose of the work presented in the paper, or its principal findings or activity.
- (2) Between these two points, background information and previous work are woven together to logically connect the relevant problem with the approach taken in the work to be presented to address the problem.
- (c) The Methods section, or its equivalent, establishes credibility for the Results by showing how they were obtained.
- (d) The Discussion begins with the same breadth of focus as the Results – but it ends at the same breadth as the starting point of the Introduction. By the end, the paper is addressing the broader issues that you raised at the start, to show how your work is important in the ‘bigger picture.’



# TITRE

“For every person who reads the whole of a scientific paper, about 500 read only the title (Kerkut 1983). One way to improve this statistic could be to make the title declarative by including what the paper says, not just what it covers.”

B Gustavii in *How to Write and Illustrate a Scientific Paper*

Fonction

Forme

# **EXAMPLES :**

“Disfluencies in Cluttered Speech”

“Voice-related quality of life: impact of a speech-language pathology intervention with teachers”

“Music listening enhances cognitive recovery and mood after middle cerebral artery stroke”

“Is synesthesia more common in patients with Asperger syndrome?”

# INTERMISSION – LE “STYLE MAISON”

Example : [Journal of Autism and Developmental Disorders](#)

# AUTEURS

“Few would dispute that researchers have to take responsibility for papers that have their names on them. A senior laboratory figure who puts his or her name on a paper without direct supervision or involvement is unquestionably abusing the system of credit. There have been occasions where distinguished scientists have put their names irresponsibly on a paper that has turned out to contain serious errors or fraud. Rightly, some of them have paid a heavy price.”

Editorial, nature, p.831, 26 June 1997

# QUESTIONS D'ÉTHIQUE...?

## 1. Qui est réellement auteur?

The ICMJE recommends that authorship be based on the following 4 criteria:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work; AND
- Drafting the work or revising it critically for important intellectual content; AND
- Final approval of the version to be published; AND
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

## 2. L'ordre des noms

## 3. Le nombre d'auteurs

## 4. Informations données

# **ABSTRACT**

Rôle

pour le lecteur  
pour l'indexage

Indépendance

Structure

# EXAMPLE 1

We propose in this paper an automatic system to detect sigmatism from the speech signal. Sigmatism occurs when the tongue is positioned incorrectly during articulation of sibilant phones like /s/ and /z/. For our task we extracted various sets of features from speech: Mel frequency cepstral coefficients, energies in specific bandwidths of the spectral envelope, and the so-called supervectors, which are the parameters of an adapted speaker model. We then trained several classifiers on a speech database of German adults simulating three different types of sigmatism. Recognition results were calculated at a phone, word and speaker level for both the simulated database and for a database of pathological speakers. For the simulated database, we achieved recognition rates of up to 86%, 87% and 94% at a phone, word and speaker level. The best classifier was then integrated as part of a Java applet that allows patients to record their own speech, either by pronouncing isolated phones, a specific word or a list of words, and provides them with a feedback whether the sibilant phones are being correctly pronounced.

Valentini-Botinhao, Cassia, et al. "Automatic detection of sigmatism in children." *WOCCI*. 2012.

# EXAMPLE 2

**Background:** Stimulability refers to the child's ability to produce a correct or improved production of the erred sound given oral and visual modeling. Stimulability assessment is recommended to be an integral part of the clinical routine. Stimulable sounds display a readiness for therapy and the extent to which a sound is stimutable is a key factor in target selection.

**Objective:** To study the factors that might be associated clinically with the stimulability of the erred sound(s) in common types of dyslalia in Arabic speaking children that may be helpful in determining the target sound in the therapy program.

**Patients and methods:** This study was conducted on 75 patients complaining of the inability to utter certain sounds correctly; they were divided into three equal groups; Group 1 (Sigmatism group); Group 2 (Back-to-Front Displacement group) and Group 3 (Rhotacism group). Stimulability test was applied for the erred phoneme in isolation and syllables.

**Results:** The highest stimulability was observed in the Sigmatism group followed by Back-to-Front Displacement group, while the Rhotacism group showed the least stimulability score. Unvoiced sounds were more stimutable than their voiced counterpart sounds. The initial position of the phoneme showed the highest stimulability followed by the middle position and lastly the final position. A highly significant correlation was detected between stimulability at the syllable with prevocalic position and stimulability at isolated sound.

**Conclusion:** Stimulability of erred sound could be altered by the type and the position of the erred sounds. Sigmatism and prevocalic position showed the highest stimulability.

Ghandour, Hassan, and Fatma-Alzahraa Kaddah. "Factors affecting stimulability of erred sounds in common types of dyslalia." *Egyptian Journal of Ear, Nose, Throat and Allied Sciences* 12.1 (2011): 61-67.



# LES MOTS-CLÉS

1. Gaussian Mixture Models, Support Vector Regression, Acoustic Analysis, Sigmatism

2. Dyslalia; Articulation disorders; Assessment of speech sounds production

# INTRODUCTION

## CARS Model (Swales (1990, revised 2004))

**Move 1 - Establishing a territory**  
(obligatory)(citations required)

Step 1 - Topic generalizations of increasing  
specificity (obligatory)

**Move 2 - establishing a niche**  
(optional)(citation possible) (Possible  
recycling of increasingly specific topics)

Step 1a - indicating a gap in previous  
research (optional)

or Step 1b - adding to what is known

Step 2 - presenting positive justifications  
(optional)

**Move 3 – presenting present work**  
(obligatory) (citations possible)

Step 1 Announcing present research  
descriptively and/or purposively -  
(obligatory)

Step 2 - Presenting RQs or hypotheses  
(optional)

Step 3 - Definitional clarifications  
(optional)

Step 4 - Summarizing methods (optional)

Step 5 - Announcing principal outcomes  
(field-dependent)

Step 6 - Staging the value of present  
research (field-dependent)

# **SIMPLIFIED MODEL**

- Opening
- Overview
- Originality
- Objectives

# EXAMPLE

**Schnakers, Caroline, et al. "Impact of Aphasia on Consciousness Assessment A Cross-Sectional Study." *Neurorehabilitation and neural repair* 29.1 (2015): 41-47.**

## Opening

Language disorders such as aphasia represent a major issue for consciousness assessment. Language plays a key role in the communication of the content of consciousness and in the interaction of an individual with his or her surroundings.[1] In the absence of such a skill, the level of consciousness may be difficult to determine accurately and could easily be underestimated.

## Overview

Stroke is the most frequent etiology of aphasia and leads to such a deficit in up to 30% of cases (vs 15% in case of traumatic brain injury).[2,3] Patients suffering from a severe brain injury due to stroke are therefore likely to present with aphasia. In brain-injured patients with disorders of consciousness, such a deficit may be difficult to detect as these patients often present few behavioral responses and are easily exhausted.[4-6] However, a hypometabolism of up to 50% in areas related to language processing (ie, left temporal cortex, left inferior frontal cortex, and right inferior temporal cortex) has been observed in patients diagnosed as being in a minimally conscious state (MCS; ie, fluctuating but reproducible conscious behavioral responses).[7-9] A previous study has also shown a decrease in the superior and middle temporal cortex in MCS patients as compared to controls when exposed to effortful language processing demands (ie, comprehensible vs reversed narratives).[10] Recently, Bruno *et al.*[11] reported that MCS- patients (showing low-level behavioral responses such as visual pursuit or localization to noxious stimulation without command following) exhibited lower cerebral metabolism in left-hemispheric cortical areas, including the language network, as compared with MCS+ patients (showing high-level behavioral responses, including command following, intelligible verbalizations, or unreliable yes-no responses). Additionally, Broca's area was disconnected from the rest of the language processing regions in MCS- patients as compared with MCS+ patients.[11] Language disorders may therefore occur in MCS patients and could interfere with behavioral assessments of consciousness.

## **Originality**

It is nevertheless almost impossible to detect language impairment in patients with disturbance in consciousness. In this context, it would be informative to assess the extent to which documented language impairments could affect patients' behavioral responses.

## **Objectives**

Thus, we investigated the impact of receptive and productive language impairments on the assessment of consciousness in patients with an established diagnosis of aphasia by administering the Coma Recovery Scale–Revised, a standardized behavioral scale commonly used to detect signs of consciousness in severely brain-injured patients.[12,13]

# MÉTHODES (& MATÉRIELS)

Garantir

la reproductibilité de l'étude

Savoir

qui était concerné

comment les données ont été acquises

quel traitement statistique a été utilisé



Exemple (1/4) - Losh, Molly, and Peter C. Gordon. "Quantifying narrative ability in autism spectrum disorder: A computational linguistic analysis of narrative coherence." *Journal of autism and developmental disorders* 44.12 (2014): 3016-3025.

## **Participants**

The subjects included 22 high-functioning individuals with ASD (referred to as the ASD group) and 26 typically developing controls who participated in the narrative study conducted by Losh and Capps (2003 ). All children demonstrated IQs within the normal range and groups were matched on verbal IQ using the WISC-III (Wechsler 2003 ), and chronological age. Children ranged in age between 8 and 14 years. Children with ASD were evaluated using gold standard diagnostic instruments, the Autism Diagnostic Interview, Revised (Lord et al. 1994 ) and Autism Diagnostic Observational Schedule (Lord et al. 2000 ), and diagnosed according to DSM-IV criteria (American Psychiatric Association 1994 ). Based on ADOS and ADI algorithm scores, all children also met current DSM-5 criteria for Autism Spectrum Disorder (American Psychiatric Association 2013 ). See Losh and Capps (2003 ) for further details on participant characteristics.

Exemple (2/4) - Losh, Molly, and Peter C. Gordon. "Quantifying narrative ability in autism spectrum disorder: A computational linguistic analysis of narrative coherence." *Journal of autism and developmental disorders* 44.12 (2014): 3016-3025.

## **Tasks**

Narrative performance was compared in two types of tasks: narrative recall and spontaneous narrative production from a picture book.

### *Narrative Recall*

Narrative recall was assessed using two oral fairy tale texts used in prior research to investigate the narrative abilities of children with intellectual disabilities (Dennis et al. 1994 ): “The Frog Prince” (Retelling #1, Opie and Opie 1974 ) and “The Practical Princess” (Retelling #2, Williams 1978 ). Text of the stories is provided in “Appendix ”. The texts were read to children by the experimenter, with accompanying demonstration with puppets depicting the main characters. After hearing each story, children were asked to tell the story to the experimenter.

Exemple (3/4) - Losh, Molly, and Peter C. Gordon. "Quantifying narrative ability in autism spectrum disorder: A computational linguistic analysis of narrative coherence." *Journal of autism and developmental disorders* 44.12 (2014): 3016-3025.

### *Picture Book Narration*

The 24-page wordless picture book, *Frog, Where Are You?* (Mayer 1969) was used to elicit spontaneous narratives from subjects. The story is about a boy and his adventures searching for his missing pet frog. This storybook has been used in many prior studies of narrative discourse in both typical and atypical development [including ASD (Capps et al. 2000; Losh and Capps 2003; Tager-Flusberg and Sullivan 1995)]. Children were asked to narrate the story as they looked at the pictures.

Prompting during all tasks was kept to a minimum and included only prompts for elaboration or clarification when children paused excessively or made confusing or incoherent remarks. Tasks were presented in random order and were video- and audio-taped for verbatim transcription. Transcribers were blind to group status and were trained to greater than 80 % reliability. Fifteen percent of transcripts were also assessed for reliability, with greater than 80 % agreement for point-to-point word agreement and utterance boundary marking. Any disagreements were resolved by a third, senior transcriber.

Exemple (4/4) - Losh, Molly, and Peter C. Gordon. "Quantifying narrative ability in autism spectrum disorder: A computational linguistic analysis of narrative coherence." *Journal of autism and developmental disorders* 44.12 (2014): 3016-3025.

## **Analysis Techniques**

The semantic similarity of the narratives was measured by entering them into the LSA website maintained at the University of Colorado (<http://lsa.colorado.edu>) a process that simply involves cutting and pasting the transcribed narratives. Similarity was measured using the default semantic space derived by LSA from a large sample of texts meant to approximate reading experience through college. This default semantic space was chosen because its range of training texts means that it is likely to capture semantic distinctions that would be missed by simpler or more specialized selections of text. In addition, while the current study compares language samples produced by children with ASD or typical development, we aimed to use a semantic space that in the future could be used to analyze adult narratives as well. Using LSA "pairwise similarity" option, similarity between narratives was measured separately for each of the three narrative productions: Retelling 1 (Frog Prince), Retelling 2 (Practical Princess) and picture book narration (The Frog Story), using LSA's matrix comparison function. For the two retellings, this involved measuring the similarity of every participant narrative with each of the other participants' narratives and with the text of the story as read prior to the retelling. For the wordless picture book there was no text version and so this simply involved measuring the similarity of participants' narratives against one another.

# RÉSULTATS

“When on the run, scientists read the Title and the Abstract for a quick taste of a research paper.

With more time, they also skim the Introduction, **glance at the figures**, and read the Conclusion.”

Katz, M. J. (2009). *From research to manuscript: a guide to scientific writing*. Springer Science & Business Media.

# FIGURES

**Table 4 | Formulaic lyrics.**

Time	Singing therapy	Rhythmic therapy	Standard therapy
Before therapy: sung	43 (±10.4)	27 (±11.1)	42 (±2.5)
Before therapy: spoken	47 (±12.3)	28 (±2.6)	49 (±2.4)
Interim, 2 weeks: sung	71 (±7.4)	56 (±4.2)	*
Interim, 2 weeks: spoken	72 (±3.1)	57 (±3.8)	*
Interim, 4 weeks: sung	78 (±5.1)	66 (±7.0)	*
Interim, 4 weeks: spoken	78 (±1.4)	71 (±6.8)	*
After therapy, 6 weeks: sung	82 (±3.4)	77 (±1.4)	48 (±1.8)
After therapy, 6 weeks: spoken	82 (±1.8)	79 (±2.9)	53 (±1.5)
Follow-up, 3 months: sung	82 (±3.4)	78 (±4.5)	*
Follow-up, 3 months: spoken	81 (±3.5)	82 (±6.9)	*

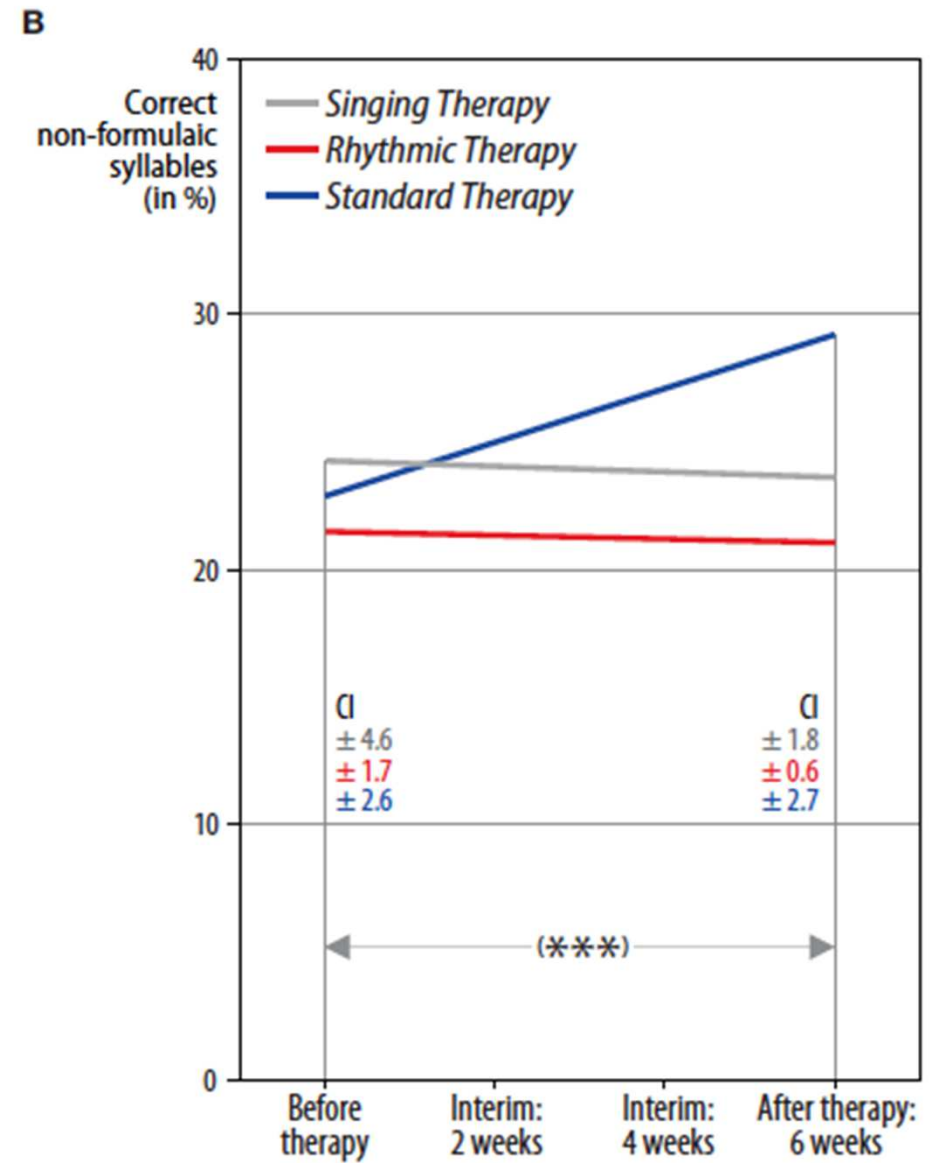
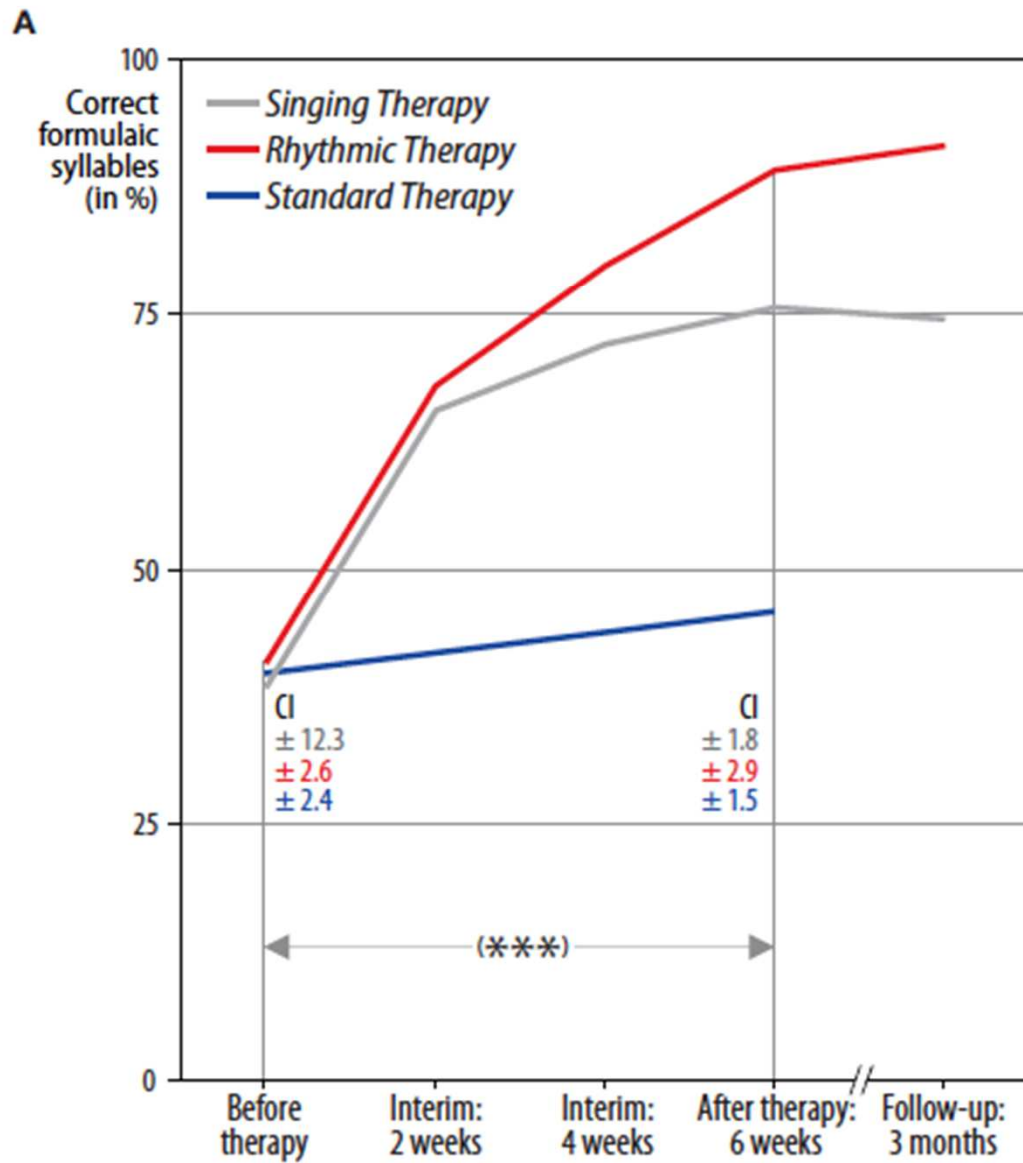
*Values represent correct syllables (in %) of formulaic lyrics at different stages of each treatment. Values in brackets display confidence intervals corrected for between-subject variance (Loftus and Masson, 1994).*

*\*No interim or follow-up measurements were conducted in this group (see "Measurements").*

**Table 5 | Non-formulaic lyrics.**

Time	Singing therapy	Rhythmic therapy	Standard therapy
Before therapy: sung	27 (±3.4)	11 (±0.6)	23 (±4.3)
Before therapy: spoken	32 (±4.6)	13 (±1.7)	32 (±2.6)
After therapy, 6 weeks: sung	27 (±2.8)	11 (±1.9)	31 (±1.5)
After therapy, 6 weeks: spoken	31 (±1.8)	12 (±0.6)	37 (±2.7)

*Values represent correct syllables (in %) of non-formulaic lyrics before and after 6 weeks of treatment. Values in brackets display confidence intervals corrected for between-subject variance (Loftus and Masson, 1994).*



Source : Stahl, Benjamin, et al. "How to engage the right brain hemisphere in aphasics without even singing: evidence for two paths of speech recovery." *Frontiers in human neuroscience* 7 (2013).

# DISCUSSION

“The discussion section ought normally reflect what would in real life be an abnormal condition: a split personality. One personality boldly makes claims about the nature and causal structure of the material world; the other tempers those claims in an attempt to avoid misleading the community of scientists about the degree of certainty endorsed.”

Harmon, Joseph E., and Alan G. Gross. *The craft of scientific communication*. University of Chicago Press, 2010.



# **STRUCTURE** (selon Docherty & Smith.)

1. Statement of principal findings<sup>[L]</sup><sub>[SEP]</sub>
2. Strengths and weaknesses of the study<sup>[L]</sup><sub>[SEP]</sub>
3. Strengths and weaknesses in relation to other studies, discussing particularly any differences in results<sup>[L]</sup><sub>[SEP]</sub>
4. Meaning of the study: possible mechanisms and implications for clinicians or policymakers<sup>[L]</sup><sub>[SEP]</sub>
5. Unanswered questions and future research

Docherty M, Smith R. The case for structuring the discussion of scientific papers. *BMJ*. 1999;318:1224–1225

# REMERCIEMENTS etc.

L'honnête homme rend à César ce qui est à César sur le plan

- pécuniaire
- Intellectuel
  
- Contribution des auteurs
- Questions éthiques

# RÉFÉRENCES

- Style maison
- <http://www.citationmachine.net/>
- Pistes pour les analyser

# **STRUCTURE D'UN *REVIEW ARTICLE***

“A beginning, a muddle and an end”?

# LIRE UN ARTICLE SCIENTIFIQUE

1. Vérifier le sens des tournures et mots inconnus
2. Identifier la question de recherche
3. Résumer le contexte
4. Examiner l'approche méthodique
5. Repérer les résultats principaux
6. Comparer les résultats et la question initiale
7. Etudier les explications des auteurs
8. Relire et évaluer le titre et l'abstract
9. Analyser les références
10. Lire les éventuels commentaires

adapté de : Raff, J. (2013, August 25). How to read and understand a scientific paper: A guide for non-scientists. Retrieved September 7, 2015.