

[dyspraxie.lu](https://dyspraxie.lu)

# How does the iPad remove the barriers to learning of DYS students?

Wednesday 11th January 2023

ESL1 APEEEL1 - Educational Support

Assistive & Compensatory technologies

Magali Netrval, Volunteer Vice-President [dyspraxie.lu](https://dyspraxie.lu)  
[mnetrval@icloud.com](mailto:mnetrval@icloud.com)

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# Agenda

- Presentation 15 mins
- Demo iPad 15 mins
- Q&A & Next Steps 30 mins



# dyspraxie.lu - Our mission





**Non Profit Association, no revenues, 4 volunteers**

1. Promote the special arrangements, the adaptations and the compensations available to protect the rights of disabled children, especially children suffering from Developmental Coordination Disorder (Dyspraxia).
  1. An iPad and its apps for each DYS student full time (in class, at home and at exams)
2. **Train all teachers and specialised staff in Luxembourg (public and private schools) on the differentiation tools and adaptations available, especially on the digital tablet in order to avoid the cognitive dual-task.**
3. Test applications, provide feedback and request DYS friendly features (SnapType, Notability, GeometryPad, Irissia)
4. Inform, share knowledge, collaborate with other European associations



# What we have achieved to date

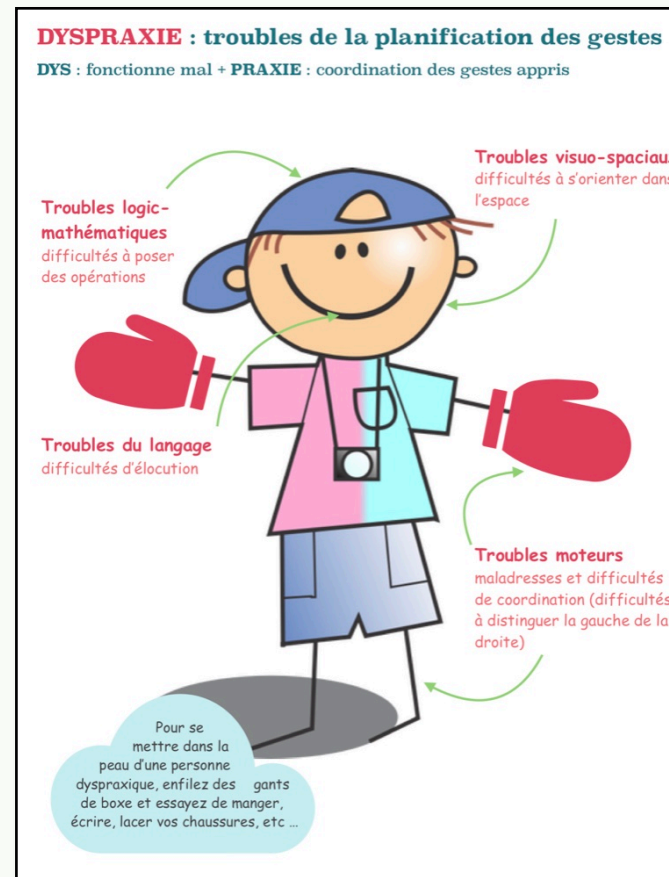
*Facilitating factor: Tablets officially authorised at national exams in France and Belgium for the last 3 years*

- **4,000+ DYS students work today on iPad in class and at exams** in Belgium, France & Luxembourg
- Locally in Luxembourg, and thanks to our interventions:
  - To date, more than **550 teachers** trained by [dyspraxie.lu](https://dyspraxie.lu)
  - Mentality shift (teachers, school & parents) : growing acceptance of assistive technologies
  - Schools move towards better Adaptations in class and better Compensations at exams
- **Contributed to the updated Educational Support Policy EU Schools out now**  
- **New technologies and digital tablets are mentioned in the Policy, now**
- **Text-to-Speech and Speech-to-Text are already included in Special Arrangements, now**
- The iPad in both ESL1 and ESL2 : [dyspraxie.lu](https://dyspraxie.lu) has regular contact with the schools
  - All 4 Support Coordinators are committed : many teacher trainings over the past 4 years in  and 
  - ESL1: iPad pilot project in Primary, iPad Support hours in Secondary, 5 DYS children fully on iPad today
  - ESL2: Circa 30 DYS students already learning on iPad in class and for evaluations



# Developmental Coordination Disorder (DCD) - Dyspraxia

- Dyspraxia Foundation UK :
  - Common disorder affecting **fine and/or gross motor coordination** in children and adults. (Handwriting, sports, speech etc..).
- French Dr Mazeau :
  - ✓ When no other pathologies are present (cerebral palsy, mental deficiencies etc...)
  - ✓ And with a normal learning process
- Permanent invisible disability !



« ...They see what they want to do in their heads but their hands get it all wrong (Gail's description of her difficulties), or as Donald described his efforts, 'It's like doing jobs with boxing gloves on' they are left confused and frustrated. »


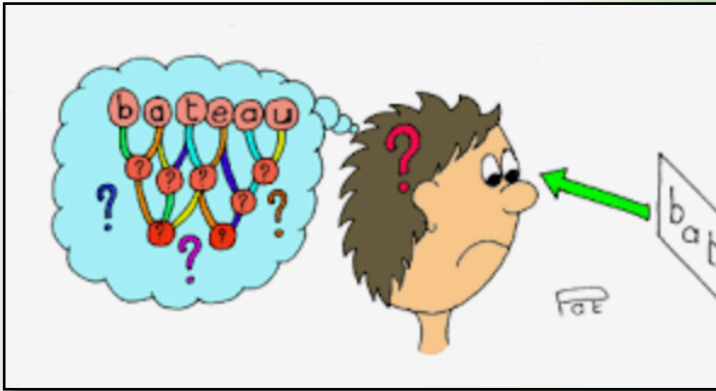

*Christine Macintyre*

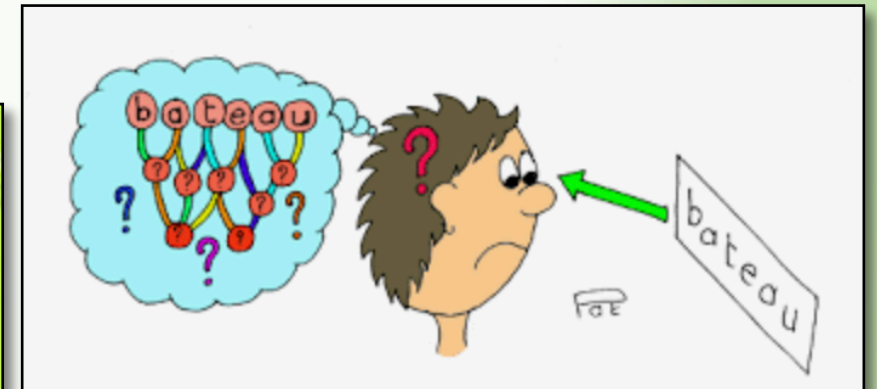
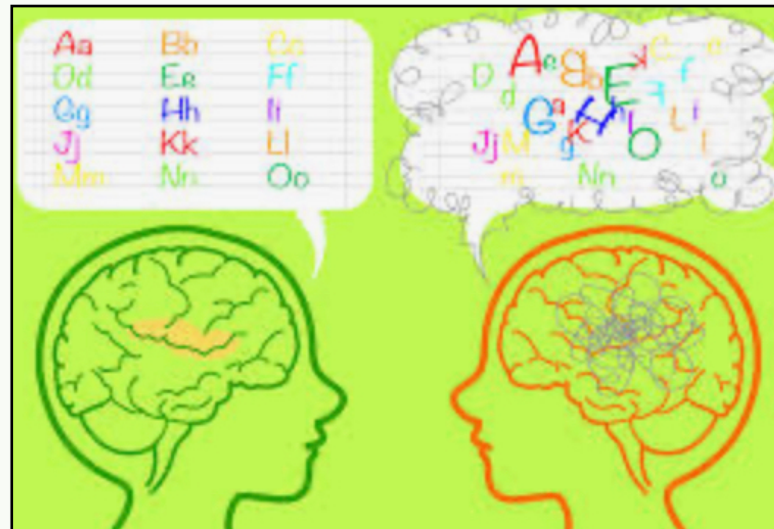
Les enfants **dys** sont des enfants **intelligents** qui souffrent de ne pas pouvoir le montrer ni le prouver. Leur **capacité** d'apprendre est **différente**, leur **volonté** d'apprendre est **identique**...

*Docteur Olivier Revol*



# Dyslexia

- **British Dyslexia Association:**
    - Dyslexia is a learning difficulty which primarily affects **reading and writing** skills.
    - Dyslexia is actually about information **processing**. Dyslexic people may have difficulty **processing and remembering** information they see and hear, which can affect **learning and the acquisition of literacy skills**.
  - ✓ When no other pathologies are present (cerebral palsy, mental deficiencies etc...)
  - ✓ And with a normal learning process
  - Permanent invisible disability !
- 



# How can the iPad eliminate the cognitive dual task?

Targeted Task	Non-automated sub task (which engages the majority of the attentional resources)	Usual class adaptation
Read a text and answer some comprehension questions	<b>Read</b> / understand	<b>Listen</b> / understand Text-To-Speech
Copy an instruction and understand it	<b>Handwrite</b> / understand	<b>Read</b> the instruction / understand Or listen to the instruction (reformulation) / understand Photo!!
Copy the lesson from the board and listen to the teacher	<b>Handwrite</b> / listen	<b>Differ</b> the time to copy from the time giving the verbal explanation Photo!!
Compose a text without spelling mistakes	<b>Handwrite</b> / check spelling	Handwrite then <b>proofread</b> afterwards Dictation and Text-To-Speech

Source: translated from <https://www.dys-positif.fr/>

➔ Assistive technology will free the students of their non-automated sub task and enable them to focus on the targeted task



# When to adapt ?

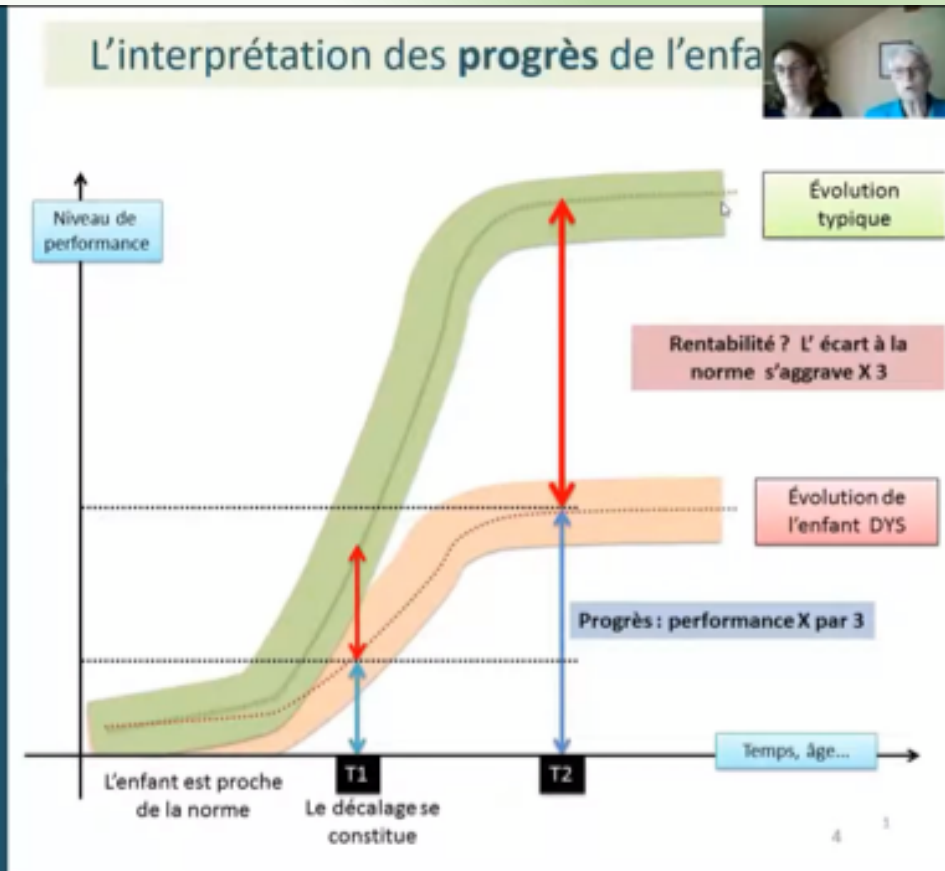
- The attainment gap widens with time
- Increased risk of dropping out
- Impact on the child mental health



Adapt and compensate as early as possible  
**DO NOT WAIT!**



Sources: Dr Michèle Mazeau & Géraldine Lotty, <https://youtu.be/1SS2U9KbOKk> translated by [dyspraxie.lu](https://dyspraxie.lu)





# Which application?\*

## Text-To-Speech TTS:

The iPad can read a text in all apps in all languages.



The digital school bag  
(annotates, organises  
schoolbooks,  
notebooks...)

## Speech-To-Text (STT or Dictation):

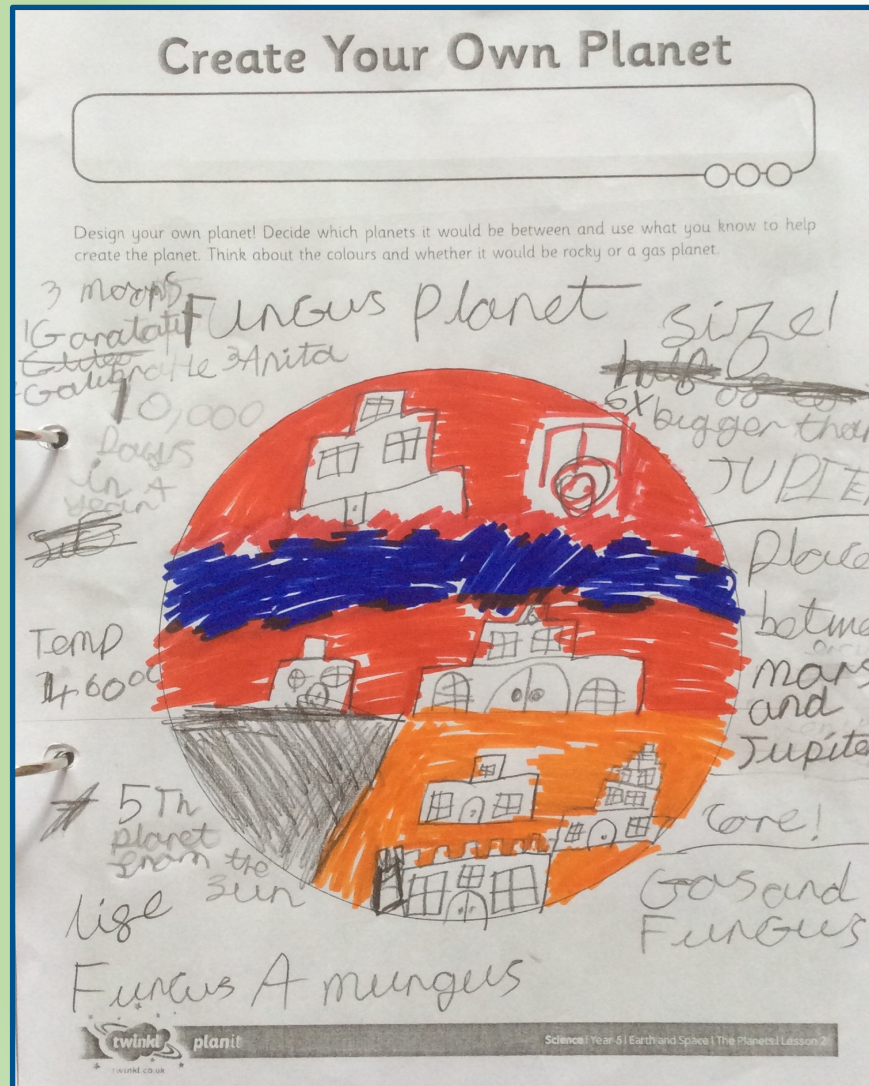
On the iPad, one can dictate a text in all apps in all languages.

\*Inspired from CALL Scotland posters

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# Without and with Notability



0:46 Fri 11 Jan 81%

< > T [drawing tools] + [link] [share]

presentation avant apres 23 Oct 2018  
13 Nov 2018 at 15:12

## Fungus planet

Has three moons

1. Garatati
2. Galibrahe
3. Anita

Size is 6 freaking times bigger than Jupiter!!!!

Place in the universe is between Mars and Jupiter.

10,000 days in a year  
minimum temperature 460 degrees celsius

core is made of gas and fungus

5th planet from the sun

life on this planet is called fungus amungus

IE.LU



# Other examples

11:45 Fri 13 May

Classwork 10/09/21

10/9/2021

1. Write the following numbers as fractions w/

(a)  $4^{-1} = \frac{1}{4}$  (b)  $2^{-3} = \frac{1}{8}$

(d)  $7^{-2} = \frac{1}{49}$  (e)  $4^{-3} = \frac{1}{64}$

1 Simplify the following. Write your answers with positive exponents only.

a  $5^6 \times 5^3 = 5^9$  b  $6^2 \times 6^{-4} = 6^{-2} = \frac{1}{6^2}$  c  $8^{-6} \times 8^2 = 8^{-4} = \frac{1}{8^4}$  d  $\frac{x^9}{x^4} = x^5$  e  $\frac{y^3}{y^{-2}} = y^5$

f  $\frac{s^8}{s^{-3}} = s^{11}$  g  $\frac{10^{-3}}{10^4} = 10^{-7}$  h  $\frac{12^{-4}}{12^8} = 12^{-12}$  i  $\frac{9^{-4}}{9^{-6}} = 9^2$  j  $\frac{2^{-7}}{2^{-5}} = 2^{-2} = \frac{1}{4}$

k  $\frac{x^{-4}}{x^6} = x^{-10} = \frac{1}{x^{10}}$  l  $\frac{a^3}{a^{-2}} = a^5$  m  $\frac{w^{-11}q}{w^{-6}q} = \frac{1}{w^5}$  n  $\frac{m^{-7}t}{m^{-5}t} = \frac{1}{m^2}$  o  $\frac{y^{-3t}}{y^{8t}} = y^{-11t} = \frac{1}{y^{11t}}$

p  $\frac{a^{-5} \times a^3}{a^4} = \frac{a^{-2}}{a^4} = a^{-6} = \frac{1}{a^6}$  q  $5x^{-2} \times 6x^{-5} = 30x^{-7} = \frac{30}{x^7}$  r  $2ab^2c^4 \times 3a^2c = 6a^3b^2c^5$  s  $(-2pq^3)(7p^3q) = -14p^4q^4$  t  $(-6y^{-3}z^{-3})(-\frac{1}{2}y^{-1}z) = 3y^{-4}z^{-2} = \frac{3}{y^4z^2}$

u  $\frac{42q^5r^4}{6pq^2r} = 7q^3r^3$  v  $\frac{12d^2ef^3}{36d^2f^2} = \frac{1}{3}ef$  w  $\frac{3p^{-4}q^{-1}}{6p^2q^{-4}} = \frac{1}{2}p^{-6}q^3 = \frac{1}{2p^6q^3}$  x  $\frac{45a^{-4}b^{-2}}{9ab} = 5a^{-5}b^{-3} = \frac{5}{a^5b^3}$

2 With the development of the metric system it became easier to compare, multiply and divide quantities because of the use of prefixes.

Prefix	Exponential form
giga	$10^9$
mega	$10^6$
kilo	$10^3$
deci	$10^{-1}$
centi	$10^{-2}$
milli	$10^{-3}$
micro	$10^{-6}$
nano	$10^{-9}$
pico	$10^{-12}$
femto	$10^{-15}$
atto	$10^{-18}$

- a How many picograms are in a kilogram?  $10^{15}$  picograms
- b How many nanobytes are in a gigabyte?  $10^9$
- c How many femtometers are in a millimeter?  $10^6$
- d What fraction of a megameter is an attometer?  $\frac{1}{10^{24}}$
- e What fraction of a decigram is a microgram?  $\frac{1}{10^3}$

a  $\frac{m^{-10}}{m^{-5}e} = \frac{m^{-10}}{m^{-5}} \cdot \frac{1}{e} = m^{-5} \cdot \frac{1}{e} = \frac{1}{m^5e}$

b  $\frac{y^{12}}{y^{12}} = y^{12-12} = y^0 = 1$

c  $\frac{a^{-5} \cdot a^3}{a^1} = \frac{a^{-2}}{a^1} = a^{-3} = \frac{1}{a^3}$

d  $\frac{3x^{-4} \cdot 6x^{-5}}{30x^{-7}} = \frac{18x^{-9}}{30x^{-7}} = \frac{3}{5}x^{-2} = \frac{3}{5x^2}$

e  $2ab^2c^4 \times 3a^2c = 6a^3b^2c^5$

f  $(-2pq^3)(7p^3q) = -14p^4q^4$

$2ab^2c^4 \times 3a^2c = 6a^3b^2c^5$

S3MAEN Operations Unit

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## SUMMARY OF THE POWERS RULES

PRODUCT RULE	$a^m \times a^n = a^{m+n}$
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11:53 Fri 13 May

S3SCHFRC

Thème 1 Définir les territoires méditerranéens

Océan Glacial Arctique

Océan Atlantique

Océan Indien

Océan Pacifique

Océan Pacifique

Équatorial

Tropical

Mousson

Méditerranéen

Océanique

Chinois

Aride

Continental

Montagnard

Polaire

Doc.3 Le climat méditerranéen dans le monde. <https://www.futura-sciences.com>

Q1. D'après les Doc.1 et 2 Quelles sont les caractéristiques du climat méditerranéen ?

Q1. Climat Méditerranéen

Caractéristiques:

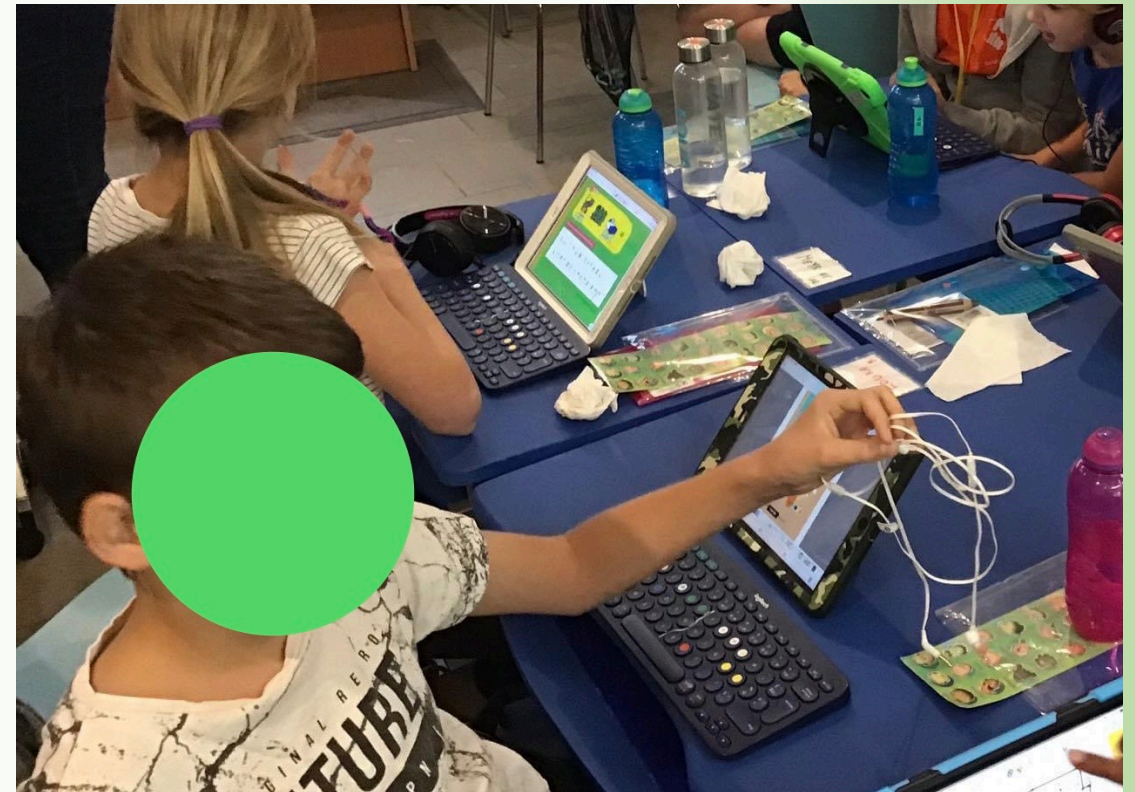
- Étés chauds et secs, froids et pluvieux
- 2 saisons de transition: le printemps et l'automne (pas trop humide et pas trop "chaud")
- Des jours d'un soleil qui change rapidement.
- Printemps et automne sont les périodes les plus agréables.

Les Pluies sont nombreuses mais réparties sur maximum 80 jours

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# How does it look in class?



*Sources: Photos courtesy of ASBL COEUR À CORPS, Belgium*

# Conclusion

- In the context of SUPPORT: The iPad is fit for purpose
  - A **compensation tool** to remove the invisible **barriers to learning** of disabled students
  - Deployed **as early as possible** when medical diagnosis is confirmed (or about to be!!)
- Assistive technology (whatever the device) is a **scientifically proven concept**:
  - Scientific research available from USA, Canada, France etc..
  - Windows Laptops largely deployed in the past for DYS students in Denmark, Sweden, France etc...
  - iPads are **NEW TECHNOLOGIES**: deployed in Belgium (10 years), France (3 years) and Luxembourg (3 years)
- Advantages for Parents & Students :
  - Parents can actively help their child : inform, train yourself, make a decision,
    - Assistive Technology will help the child compensate their difficulties **AT SCHOOL NOW**
  - Students regain their autonomy and self-esteem
  - If well trained on it, your child WILL reach their true academic potential : Cherry on the cake!

**Win-win for schools (better inclusion), teachers (less differentiation preparation work required) and students (better autonomy & self-esteem)**



**Thank you**  
**Demonstration - 10 mins**  
[mnetrval@icloud.com](mailto:mnetrval@icloud.com)







**Invitation**  
**Café DYS**  
**Saturday 28 January 2023**



**Ask us questions**

**Share with other parents**

**Children between 6 and 18 can meet (with or without their iPad)**

**See how the iPad for DYS can compensate difficulties**



**RDV : Cocotte's City Concorde**  
**80 route de Longwy 8060 Bertrange**  
**2pm - 4 pm**

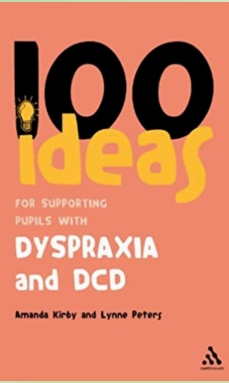
**RSVP à Magali Netrval [mnetrval@icloud.com](mailto:mnetrval@icloud.com)**

**Thank you and see you soon !**

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# Research and Sources links (1 EN)

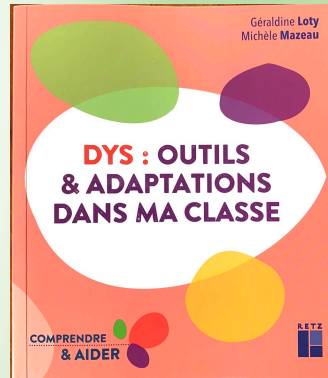


- [dyspraxie.lu](https://dyspraxie.lu) YouTube channel : iPad capsule video tutorials (FR & EN playlists):
  - <https://www.youtube.com/channel/UC472V5j5uYqsSYwJXp4Kj6w>
- **SCHOOL BOOKS in PDF format:**
  - BookinLu association for French PDF schoolbooks in FR : <https://bookinlu.wixsite.com/bookin-lu>
  - RNIB Bookshare for PDF UK schoolbooks from English publishers : <https://www.rnib.org.uk/reading-services/rnib-bookshare> (ESL2 school is already a member)
- **IPad Parents & Students Training available in FR and EN:**
  - Coeur à Corps association, Belgium: <http://www.asblcoeuracorps.net/> (FR and **EN**, online or on site)
  - Marielle Certain, French Ergothérapeute (Occupational Therapist): <https://dys-et-performants.com/> (FR, en ligne, asynchrone)
  - DYS.LU for students training on the iPad, in Sanem in Luxembourg, in Lux, DE, FR, EN and IT
- Reference Books EN :
  - **Dyspraxia 5-14: Identifying and Supporting Young People with Movement Difficulties**, Christine Macintyre
  - **100 Ideas for Supporting Pupils with Dyspraxia and DCD**, Prof Amanda Kirby



# Research and Sources links (2 FR/EN)

- Video conferences on DYS conditions and the iPad for DYS:
  - Conférence Dr Michèle Mazeau au Réseau Canopé FR (CanoTECH), Mars 2021 : <https://youtu.be/z6ouLI83-6Y> (extrait FR : <https://youtu.be/yIheyI0bctw>)
  - Conférence G.Loty à l'IFEN LUX/FR, Mars 2021 : <https://fb.watch/4tGnAsZeVj/>
- Guide de l'iPad du CDA : <https://cc-cda.lu/wp-content/uploads/2021/03/Guide-Ipad-CDA.pdf#>
- FaceBook Group iPad for DYS for parents, paramedical, teachers etc...(FR) : « En classe avec mon iPad, spécial enfants à besoins spécifiques » :
  - <https://www.facebook.com/groups/1545796688965651/?ref=share>
- Specialised books promoting the tablets for DYS in FR :
  - « Dys: Outils et Adaptations dans ma classe », Dr M.Mazeau et G.Loty, éditions RETZ.
  - « Les aménagements Raisonables », Véronique Keunen, éditions Erasme, collection “à la rescousse”.
- Additional videos tutorials on the iPad for DYS :
  - Conference Prof Amanda Kirby on DCD and comorbidity of neurodevelopmental conditions EN : <https://youtu.be/2A94qviJOPg>
  - CALL Scotland EN (in-build iPad basic accessibility features): <https://www.callscotland.org.uk/blog/ipad-short-video-guides-to-support-reading-and-writing/>
  - Apeda Numabib Belgique BE/FR (Notability app) : <https://m.youtube.com/channel/UCNHyWYNgCz8Kvz9n2g0g>





Thank you

Q&A

[mnetrval@icloud.com](mailto:mnetrval@icloud.com)

**+352 661 720 581**



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