FLEX PICTURE EBOOK

A digital book for inclusive inclusive learning

A step-by-step guide for a child with an autism spectrum disorder to understand a text

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Content

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Here is a short guide to help you support and guide children with autism spectrum disorders in their reading.

Preamble on possible reading difficulties linked to the specific features of autism spectrum disorder

Autism is defined by a difficulty in understanding social codes, particularly implicit ones. Irony and humour are difficult to understand. Autism is characterised in particular by a literal understanding of words, i.e. in the first degree, whether orally, in writing or through images.

Reading comprehension is a complex task involving a number of cognitive processes. Reading comprehension requires the reader to be able to identify written words, understand vocabulary, syntactic structures and discourse style, and have good attention and memory skills. However, these skills alone are not enough.
Understanding a text also depends largely on the reader's ability to make inferences. In reading, inferring means 'deducing what is not written in the text'. Children with autism who begin to read **must learn to put certain words in relation to each other in order to construct mental images that will help them to guess what is not said in the text**. But this skill is not at all obvious to them and needs to be worked on gradually.

Moreover, using mental schemas can be very difficult for some children.

Methods to help children understand inferences and build mental images

Some examples of characters:

What does Nathan do for a living?
It's a big day for Nathan, because for the first time since becoming an astronaut, he has taken the controls of a spaceship and is heading for the moon.
Here, the answer is explicitly given in the text.
What does William do for a living?
William has been working in a hospital emergency room for several years. He often operates on people who have had serious accidents.
The answer here is not in the text.

Once children are aware that the answer to a question may be implicit, they then need to know how to go about finding that answer. **They need to be able to identify words or groups of words in a text that are clues to deducing an implicit answer.**

How can we help children develop their mental imaging?

This method explains how to do this as you read the underlined words in the text.

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Example:
<u>Where is Maya?</u> Out of breath, Maya is walking along a path with her rucksack. She wonders whether the view will be good at the top.
'First, we see a little girl walking along, out of breath. Then we see the same little girl, out of breath and carrying her rucksack. Then we see her walking with her rucksack along a narrow path lined with trees. Finally, we see her walking with her rucksack along a narrow tree-lined path towards the highest part of a place where there will be a beautiful view.'
The method can include illustrations showing the evolution of what we see as we read. These methods will help children to build mental images that link up and change as new clues are found in a text, rather than just isolated images that do not allow inferences to be made.

Applying this inference method to the reading of the album *Ben wants a bat*

There are three possibilities for reading *Ben wants a bat*:
- **Option 1:** Use a simple symbol (?*) to indicate the absence of an explicit word so that the pupil can see that it is an inference and look for a word to which the text refers.
- **Option 2:** Limit what is left unsaid and ensure that the answers are always explicitly contained in the text.
- **Option 3:** Highlight word groups and clue words so that the child can construct mental images in his head.

Option 1 : Use a simple symbol (?*) to indicate the absence of an explicit word so that the pupil can see that this is an inference and look for a word to which the text refers.

Today, Ben wants a bat. And that's it. That's the way it is. And no other way. That's the way it is and nothing else! Ben wants a bat.
A real ???. A ??? that flies at night. A ??? with weird wings, black eyes, little teeth and little claws.
 A bat that sleeps upside down.
Just like a bat!

'But really, Ben, it's not possible!
Yes, it is possible.
If Ben wants it, it's possible (???).
And why shouldn't it be possible in the first place?
Why not?
'But, but, but... well, because... because... bats don't live in flats, they live in caves.'

Ben scratches his head and blinks. That means he's thinking.
What if everyone went and lived in a cave, eh? Now that's a great idea!
'But, Ben, there are no caves around here! And, as you know, bats live at night!
Ben blinks and rubs his nostrils. He's thinking. He's thinking. He's understood the cave (???). He's willing to give up (???).
But for the night, it's easy (???). Just turn off all the lights, close the shutters, draw the curtains. Just live in the dark...
But Ben, we'd be bumping into everything! And then, you know, bats eat little mice.

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Ben frowns. No, they don't.
Bats don't eat little mice. He's done his homework. They eat mosquitoes.
Mosquitoes! All you have to do is turn on all the lights, so that all the mosquitoes can get into the house, and the bats will have something to eat.
'But Ben, if we turn on all the lights, it won't be dark anymore!
Pfff! Ben is getting a bit fed up...
He looks for something else to say, but frankly he's out of ideas.

'Anyway, Ben, I don't even see why I'm arguing (???). We're not going to get a bat, full stop. Nobody has a bat in their house. There's not a child in the world who has a bat in his room and, if you're not happy, it's all the same (???)!'
Ben frowns one last time and crosses his arms. He sulks. He murmurs. OK, it's all right, he's understood. No bats. No bats. Anyway, it doesn't matter (???). He's got a better idea (???)

A much better idea... (???)

Option 2: Add the missing word or the entire implicit detail

Today, Ben wants a bat. That's it. That's the way it is. And no other way. That's the way it is and nothing else! Ben wants a bat.
A real bat. A bat that flies at night. A bat with weird wings, black eyes, little teeth and little claws. A bat that sleeps upside down.
Just like a bat!

'But really, Ben, it's not possible!
Yes, it is possible.
If Ben wants to, then it's possible (to have a bat in the house).
And why wouldn't it be possible in the first place?
Why not?
'But, but, but... well, because... because... bats don't live in flats, they live in caves.

Ben scratches his head and blinks. That means he's thinking.
What if everyone went and lived in a cave, eh? Now that's a great idea!
'But, Ben, there are no caves around here! And, as you know, bats live at night!
Ben blinks and rubs his nostrils. He's thinking. Ok. The cave, he's realised (what? He's realised there's no cave near him). He's willing to give up (what? his idea of going to live in a cave).
But at night, it's easy. Just turn off all the lights, close the shutters, draw the curtains. Just live in the dark...
But Ben, we'd be bumping into everything! And then, you know, bats eat little mice.
Ben frowns. No, they don't.
Bats don't eat little mice. He's done his homework. They eat mosquitoes.
Mosquitoes! All you have to do is turn on all the lights, so that all the mosquitoes can get into the house, and the bats will have something to eat.
'But Ben, if we turn on all the lights, it won't be dark anymore!
Pfff! Ben is getting a bit fed up...
He looks for something else to say, but frankly he's out of ideas.

'Anyway, Ben, I don't even see why I'm arguing (about what? the subject of having a bat in the house). We're not going to have a bat, full stop (we're not going to talk about the subject of having a

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bat in the house). Nobody has a bat in their house. There isn't a child in the world who has a bat in his room and, if you're not happy, it's the same thing (I won't change my mind)!'

Ben frowns one last time and crosses his arms. He sulks. He murmurs. OK, that's it, he's got it. No bats. No bats. Anyway, it doesn't matter (if he can't have a bat). He's got a better idea (than having a bat in the house).

A much better idea... (he's going to ask for a huge animal that lives in the **ocean,** which is an invertebrate with big tentacles, called an 'octopus')

Option 3: give the clue words that will help the pupil to find the implicit meaning and build a mental image, where possible.

Today, Ben wants a bat. That's it. That's the way it is. And no other way. That's the way it is and nothing else! Ben wants a bat.
A real one that flies at night. One with weird wings, black eyes, little teeth, little claws.
One that sleeps upside down.
Just like a bat!

'But really, Ben, it's not possible!
Yes, it is possible.
If Ben wants it, it's possible.
And why shouldn't it be possible in the first place?
Why not?
'But, but, but... well, because... because... bats don't live in flats, they live in caves.

Ben scratches his head and blinks. That means he's thinking.
What if everyone went and lived in a cave, eh? Now that's a great idea!
'But, Ben, there are no caves around here! And, as you know, bats live at night!
Ben blinks and rubs his nostrils. He's thinking. He's thinking. He's understood the cave (???). He's willing to give up (???).
But for the night, it's easy. Just turn off all the lights, close the shutters, draw the curtains. Just live in the dark...
But Ben, we'd be bumping into everything! And then, you know, bats eat little mice.
Ben frowns. No, they don't.
Bats don't eat little mice. He's done his homework. They eat mosquitoes.
Mosquitoes! All you have to do is turn on all the lights, so that all the mosquitoes can get into the house, and the bats will have something to eat.
'But Ben, if we turn on all the lights, it won't be dark anymore!
Pfff! Ben is getting a bit fed up...
He looks for something else to say, but frankly he's out of ideas.

'Anyway, Ben, I don't even see why I'm arguing. We're not getting a bat, full stop. Nobody has a bat in their house. There's not a child in the world who has a bat in his room and, if you're not happy, it's all the same!

Ben frowns one last time and crosses his arms. He sulks. He murmurs. OK, that's it, he's got it. No bats. No bats. Anyway, it doesn't matter. He's got a better idea.

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A much better idea....

Summary and further explanation of the text *Ben wants a bat* on the subject of inferences and autism spectrum disorder

In addition to inferences, an explanation of vocabulary is necessary to understand certain colloquial expressions:

- The bat
  On the third page of the book, the word bat is not repeated three times and there is an implicit reference to the bat without the word being written literally.
  And in the fourth sentence, once again, the word bat is not mentioned.
  Even though each sentence describes the object bat, it remains implicit.

- 'If Ben wants to, it's possible'.
  There's an inference because the object of Ben's desire isn't literally explained, so it can be beneficial for a child who doesn't easily understand implicit statements to add an extra explanation: to have a bat at home.

- 'He's understood the cave. He's willing to let it go'.
  Here again, it may be necessary for the child who is not very comfortable with implicits to give a concrete explanation of what Ben has really understood and what he really wants to drop.

- The end of the text is particularly focused on the implicit and also on subtle humour, not really accessible to children with autism.
  - It may therefore be advantageous to add explicit wording behind 'why I'm talking' (about what? the subject of having a bat at home).
  - And the 'full stop'. (We won't talk any more about the subject of having a bat at home).
  - You can even go a step further by explaining what 'full stop' means: it's a way of saying that there's nothing more to say and that there's no need to debate the subject any further.
  - Behind the 'it's the same thing', in the same way, it may be necessary to add explicit training with (I won't change my mind)!

- Towards the very end of the text, there are several implicit statements: *'OK anyway, it doesn't matter'*:
  It may be necessary to clarify the intention behind the phrase 'it's not serious', which is not always to be taken at face value.
  'It's not serious' may be displayed in a casual way, but in reality it's important for the person feeling the emotion. It's an expression used to avoid losing face or to protect oneself from the reality of one's feelings. This expression does not always reflect the reality of the inner emotional landscape.

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- 'He has a better idea...' is repeated twice.
  Once to say that a new idea has appeared in his head and a second time with the image of
  the octopus, which assumes that the child knows the word associated with the image.
  For this final part, it may be important to specify the concrete idea.
  He has a better idea (than the idea of having a bat at home).
  A much better idea... (he's going to ask for a huge animal that lives in the oceans, which is an
  invertebrate with large tentacles, called an 'octopus').

In addition, for children with autism, we can go further by explaining the parallel between emotions and physical manifestations: explanations of the physical mimics that convey an emotion.

- 'Ben blinks and rubs his nostrils. He's thinking. OK. The cave, he's understood.' :
  Ben is faced with incomprehension. He doesn't understand and this is expressed by a
  physical sign.

- 'Ben frowns':
  Ben is faced with incomprehension. He doesn't understand and this is expressed by a
  physical sign.

- 'Pfff! Ben is getting a bit fed up':
  Ben sighs to express his annoyance and disagreement.

Additional resources

- Adapting teaching materials to use mental maps - Agnès Deschamps of the Pédagogie
  autisme blog
- SACCADE method in Quebec
- *Beyond Words* Éditions Passe-temps: a game from which the examples used to explain the
  notion of inference (where is Maya? and what does Nathan do for a living?) were taken.
  There are many games that can be used to work on the notion of inference with children with
  ASD.

Presentation of the Ludosens organisation (Bègles, France) that wrote this note

Priscilla Laulan set up Ludosens in January 2015. Coming from a family affected by autism and
attention deficit disorder with or without hyperactivity (ADHD), she has seen the problems
generated in families in different public policy contexts at different times (1970s, 1990s, 2010s, etc.).

An environmental engineer, geographer and ethno-ecologist by training, and deeply attached to the
values of the Social and Solidarity Economy, she wanted to reconcile her personal history, her
professional skills and her desire to provide solutions for families, children and young adults
affected by neurodiversity.

Originally, having herself used Montessori-inspired games extensively to support her daughter, who

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was diagnosed with autism at the age of three, the idea was to democratise play tools adapted to autism so that families could benefit from them. The specialised toy library was the very first project to be set up, along with advice to local authorities on how to better cater for children with special needs. Today, the toy library is accessible to all families affected by disability.

In 2018, the Valuing All Forms of Intelligence programme was launched, providing almost full-time support for more than 60 young people aged between 18 and 30. The artistic and digital pathways will be joined by the permaculture pathway from summer 2020. The idea came from the observation that for young people with disabilities, there are few concrete opportunities to socialise and get moving through collective projects. The positive feedback and warm testimonials have encouraged us to continue our work. Every year, new artistic and digital projects enable young people to express their views on what's important to them, and these awareness-raising tools are distributed as widely as possible.

Ludosens has been lucky enough to meet partners in Quebec and Spain, and collaborations have been nurtured between 2018 and 2023. Mobilities have enabled young people from neurodiversity backgrounds to go on trips in 2019 and twice in 2022. These cooperation projects have been a great source of inspiration for what is being done to promote inclusion abroad. Today, Ludosens is continuing its involvement in international cooperation projects until 2025 on access to reading for children with disabilities with Italy, Austria, Lithuania and other French partners.

In 2019, a meeting with Olivier Desagnat, film-maker and co-founder of D'Asques et D'Ailleurs, led to the co-direction and co-production of a documentary entitled 'Our atypical talents, a plus for society', which was completed in April 2021. The documentary was screened online and in various cinemas in Gironde: at Utopia in Bordeaux, and in Bazas, Arcachon, Saint André de Cubzac and Saucats. It's been a wonderful adventure, and an opportunity for some fascinating discussions with the audience.

In 2020, Ludosens' activities were enriched by encounters with special partners, and new projects in the field of garden forests were launched. The philosophical intention is to reconnect people with their emotions and sensations through edible plants and to highlight the wonderful sensitivity of young people with neurodiversity. The young people involved are called garden messengers, and they raise public awareness of garden forests and their importance in the city.
In the summer of 2022, Bordeaux Métropole awarded us a plot of land in Caudéran to manage and plant a multisensory garden forest.

Today, Ludosens has five employees, coaches and trains professionals from local authorities and the business world, supports around 22 young people each year on 9-month pre-professional courses, raises awareness among around 1,200 people (company employees, schoolchildren, etc.) and works with numerous partners on various projects.

Its Board of Directors is made up of ten people from a variety of professional backgrounds: autism, tourism, human resources, local authorities and former participants in the 'Let's value' programme.

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Appendix 1: Project summary

Flex Picture Ebook: a digital book for inclusive learning

Existing teaching materials often do not meet the specific needs of children with disabilities. What's more, adapted books are often expensive and pose problems when it comes to integrating them into inclusive educational environments.

In partnership with digital accessibility experts, teachers and a children's book publisher, this project aims to design an illustrated digital book that is accessible to all children, including those with disabilities. In addition to the text to be configured, a 'Flex Picture Ebook' includes adapted illustrations with several levels of simplification, interactive elements and an audio narration, while remaining affordable. A quick demonstration of how to set up the Simplify Isolate Animate Zoom illustrations can be found on the project website.

Our aim is to increase the availability and quality of accessible digital books that fit seamlessly into inclusive learning environments.

Key deliverables:

- Flex Picture Ebook 'Émile veut une chauve-souris' (V Cuvellier, R. Badel) in 5 languages.
- Raising awareness and providing support for teachers and parents by supplying teaching scenarios tested in the classroom.
- Training content producers in the publication of Flex Picture Ebooks and making available free software and guidelines.

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Appendix 2: European partners

France

Les Doigts Qui Rêvent, Talant
Ludosens, Bègles
Institute for the Young Blind (IJA), Toulouse

Austria

Johannes Kepler University, Linz

Italy

Fondazione Robert Hollman,
AbilNova, Trento

Lithuania

Lietuvos Aklųjų ir Silpnaregių Ugdymo Centras (LASUC), Vilnius