

Neurodiversity and Visual Thinking

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2010

Disease or Difference?

Neurodiversity is an idea which asserts that atypical neurological development is a normal human difference that is to be recognized and respected as any other human variation.

Differences may arise in ways of processing information, including language, sound, Images, light, texture, taste, or movement.

Understanding difference

How can we teach them better?

What can we learn from them?

Dyslexia checklist

- Difficulties telling left and right
- Problems understanding time
- Difficulties following instructions
- Difficulties with hand-eye coordination
- Difficulties with clapping a rhythm
- Problems with self esteem and frustration
- But demonstrates good abilities in other contexts

Dyslexia checklist

- Difficulties in reading
- Difficulties in writing
- Has problems reading what he has written
- Bizarre writing
- Confusion between the meaning of words
- Completing tasks slowly
- Problems with multiplication tables

Adult Dyslexia Questionnaire

Developed by Ian Smythe
in collaboration with John Everatt
Copyright 2001

Do you confuse visually similar words such as tan and ton?

Rarely	(3)
Occasionally	(6)
Frequently	(9)
Most of the time	(12)

Do you lose your place or miss out lines when reading?

- Rarely (2)
- Occasionally (4)
- Frequently (6)
- Most of the time (8)

**Do you confuse the names
of objects, for example
table for chair?**

Rarely (1)

Occasionally (2)

Frequently (3)

Most of the time (4)

Do you have trouble telling left from right?

Rarely (1)

Occasionally (2)

Frequently (3)

Most of the time (4)

**Is map reading or finding
your way to a strange place
confusing?**

- Rarely (1)**
- Occasionally (2)**
- Frequently (3)**
- Most of the time (4)**

**Do you re-read paragraphs
to understand them?**

Rarely (1)

Occasionally (2)

Frequently (3)

Most of the time (4)

**Do you get confused when
given several instructions at
once?**

Rarely (1)

Occasionally (2)

Frequently (3)

Most of the time (4)

Do you make mistakes when taking down telephone messages?

- Rarely (1)**
- Occasionally (2)**
- Frequently (3)**
- Most of the time (4)**

**Do you find it difficult to find
the right word to say?**

- Rarely (1)**
- Occasionally (2)**
- Frequently (3)**
- Most of the time (4)**

How often do you think of creative solutions to problems?

- Rarely (1)
- Occasionally (2)
- Frequently (3)
- Most of the time (4)

**How easy do you find it to
sound out words such as
el-e-phant?**

Easy	(3)
Challenging	(6)
Difficult	(9)
Very difficult	(12)

When writing, do you find it difficult to organise thoughts on paper?

Easy	(2)
Challenging	(4)
Difficult	(6)
Very difficult	(8)

Did you learn your multiplication tables easily?

Easy	(2)
Challenging	(4)
Difficult	(6)
Very difficult	(8)

**How easy do you find it to
recite the alphabet?**

- Easy (1)**
- Challenging (2)**
- Difficult (3)**
- Very difficult (4)**

How hard do you find it to read aloud?

- Easy (1)
- Challenging (2)
- Difficult (3)
- Very difficult (4)

Results

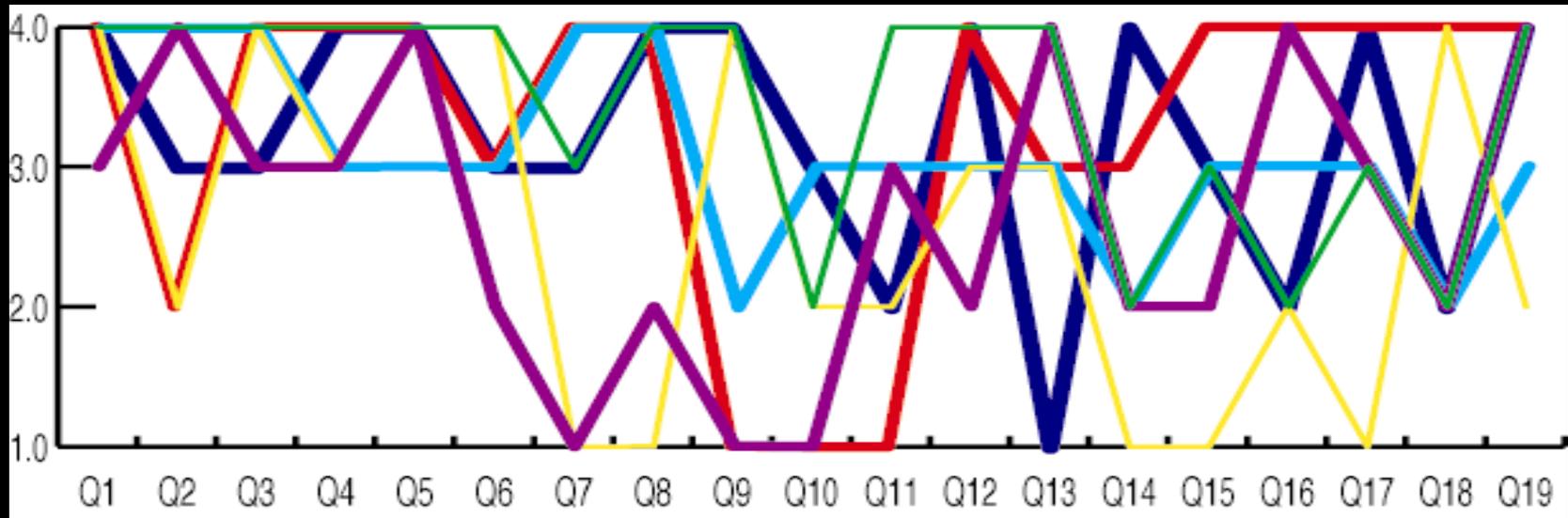
Less than 45 – consistent with results of somebody who is not dyslexic.

45-60 – shows signs consistent with mild dyslexia.

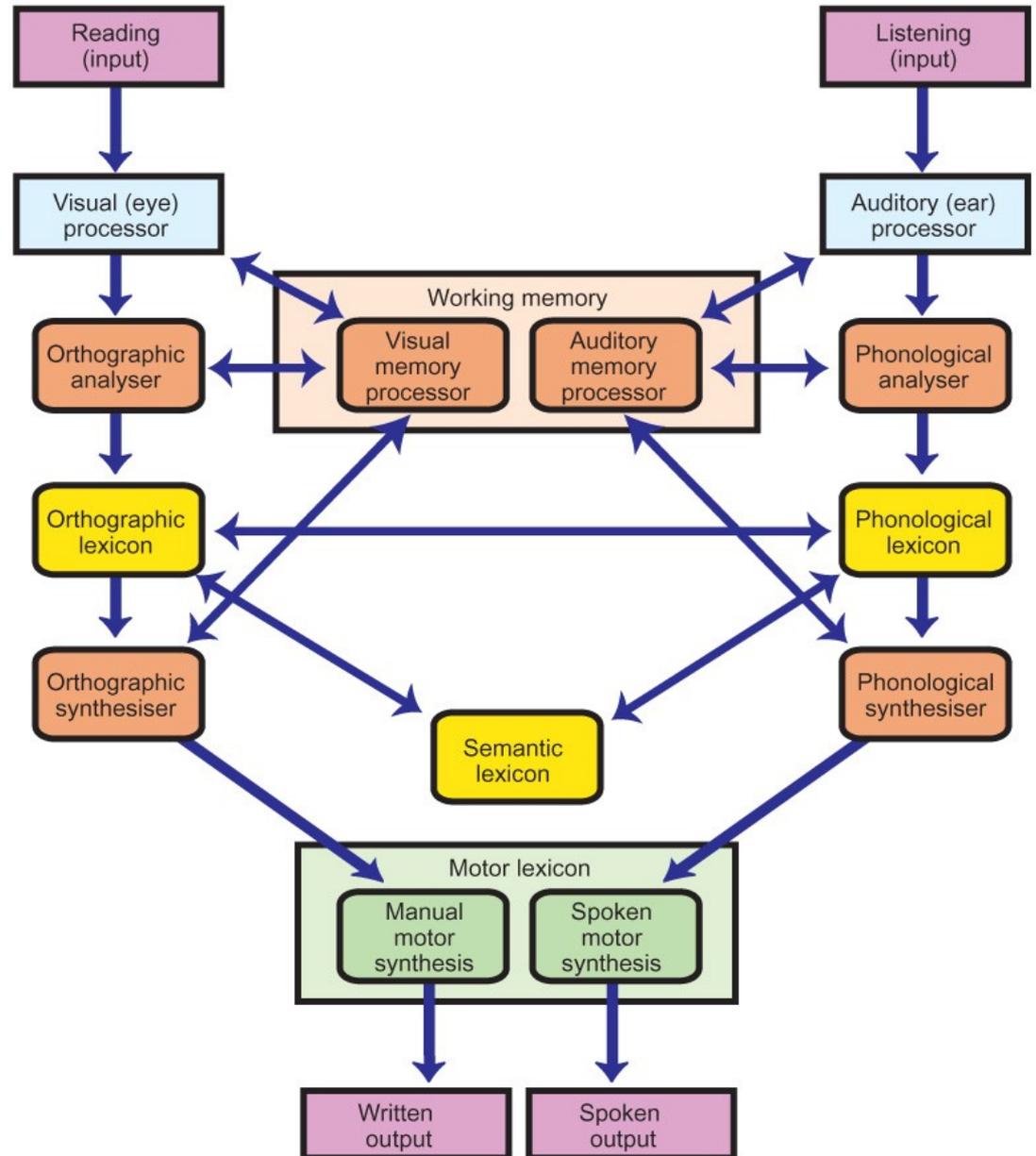
Greater than 60 – consistent with moderate or severe dyslexia

Every dyslexic is different

1 = Rarely 2 = Occasionally 3 = Frequently 4 = Most of the time

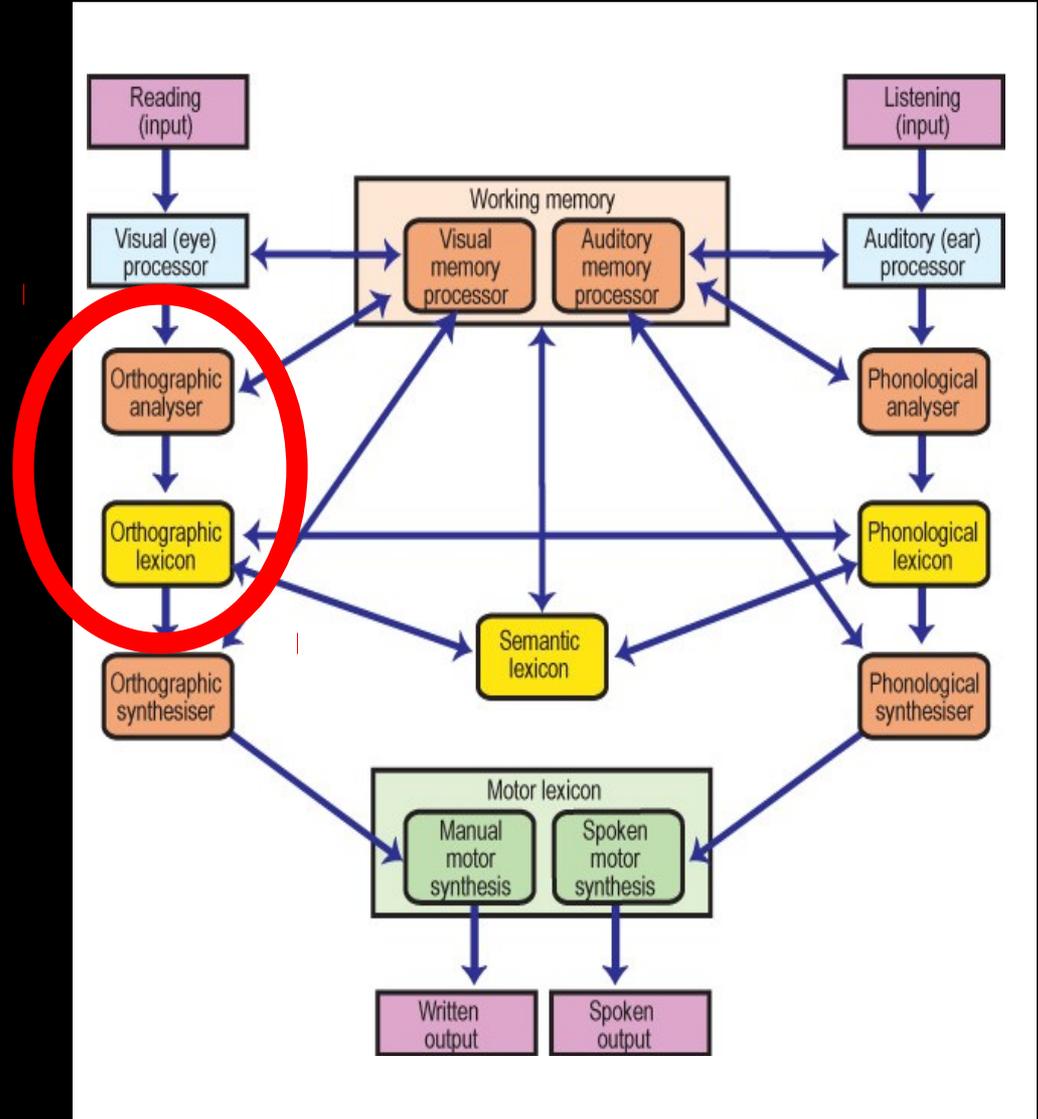


An international model of reading



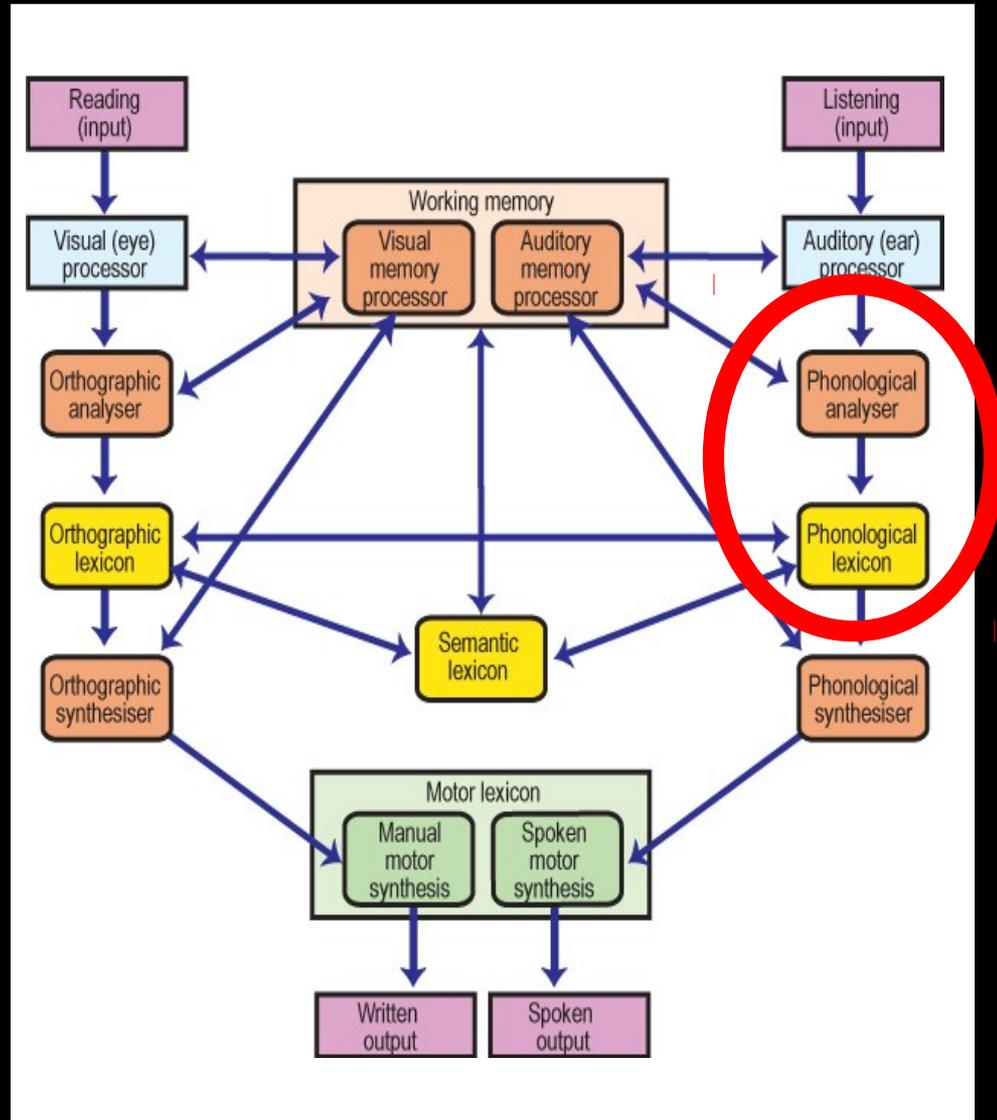
Do you confuse visually similar words such as cat and cot?

- Rarely
- Occasionally
- Frequently
- Most of the time

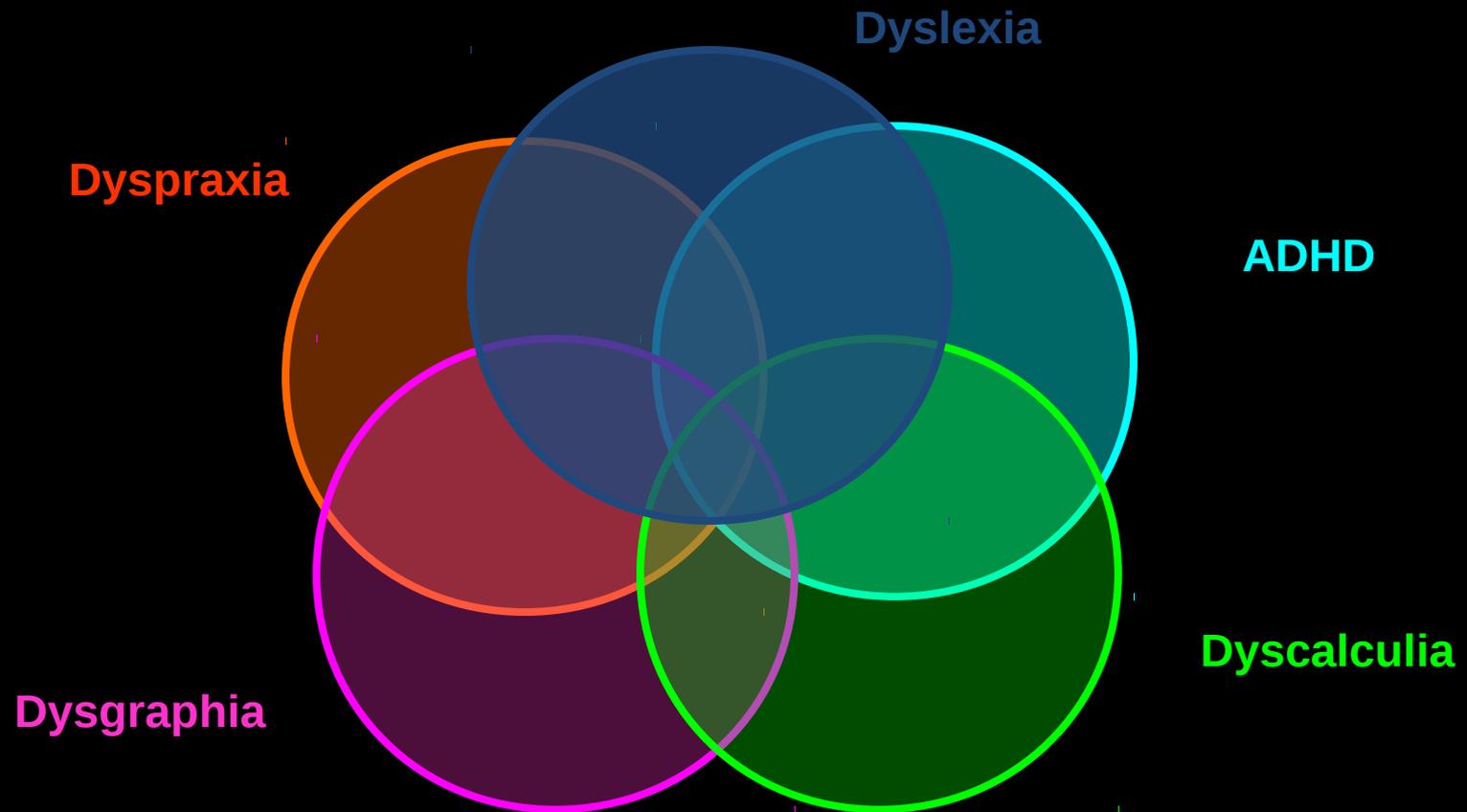


How easy do you find it to sound out words such as e-le-phant?

Very easy
Easy
Difficult
Very difficult



More than one area of difficulty



Dyslexia

Dyslexia is a difficulty in the acquisition of literacy skills that is neurological in origin.

It may be caused by a combination of difficulties in auditory and visual processing, working memory, storage and retrieval in the lexica and motor difficulties.

Dyslexia

Dyslexia is a specific learning difficulty, it is not correlated with IQ.

10% of population

25 million people in Europe

1 student in each classroom

Learning disability

- The person has difficulty learning in a typical manner due to neurological factors that affect the brain's ability to receive and process information.
- This disorder can make it problematic for a person to learn as quickly or in the same way as someone who isn't affected by a learning disability.

Learning disability

- Learning disability is not indicative of intelligence level. Rather, people with a learning disability have trouble performing specific types of skills or completing tasks if taught in conventional ways.
- A learning disability cannot be cured or fixed. With the right support and intervention, however, people with learning disabilities can succeed in school and go on to be successful later in life.

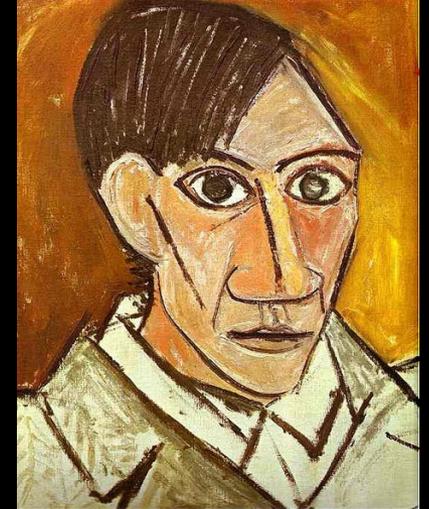
Contextual disability

There are times when a dyslexic individual may not be considered disabled.

This would be when the dyslexia is judged not to impact on their day-to-day activities.

office manager ↔ lumberjack

Gift of dyslexia?



Theory of Multiple Intelligences

Howard Gardner: Frames Of Mind (1983)

A model of thinking, learning and social interaction.

7 types of intelligence

<u>intelligence type</u>	<u>capability and perception</u>
Linguistic	<u>words and language</u>
Logical-Mathematical	<u>logic and numbers</u>
Musical	<u>music, sound, rhythm</u>
Bodily-Kinesthetic	<u>body movement control</u>
Spatial-Visual	<u>images and space</u>
Interpersonal	<u>other people's feelings</u>
Intrapersonal	<u>self-awareness</u>

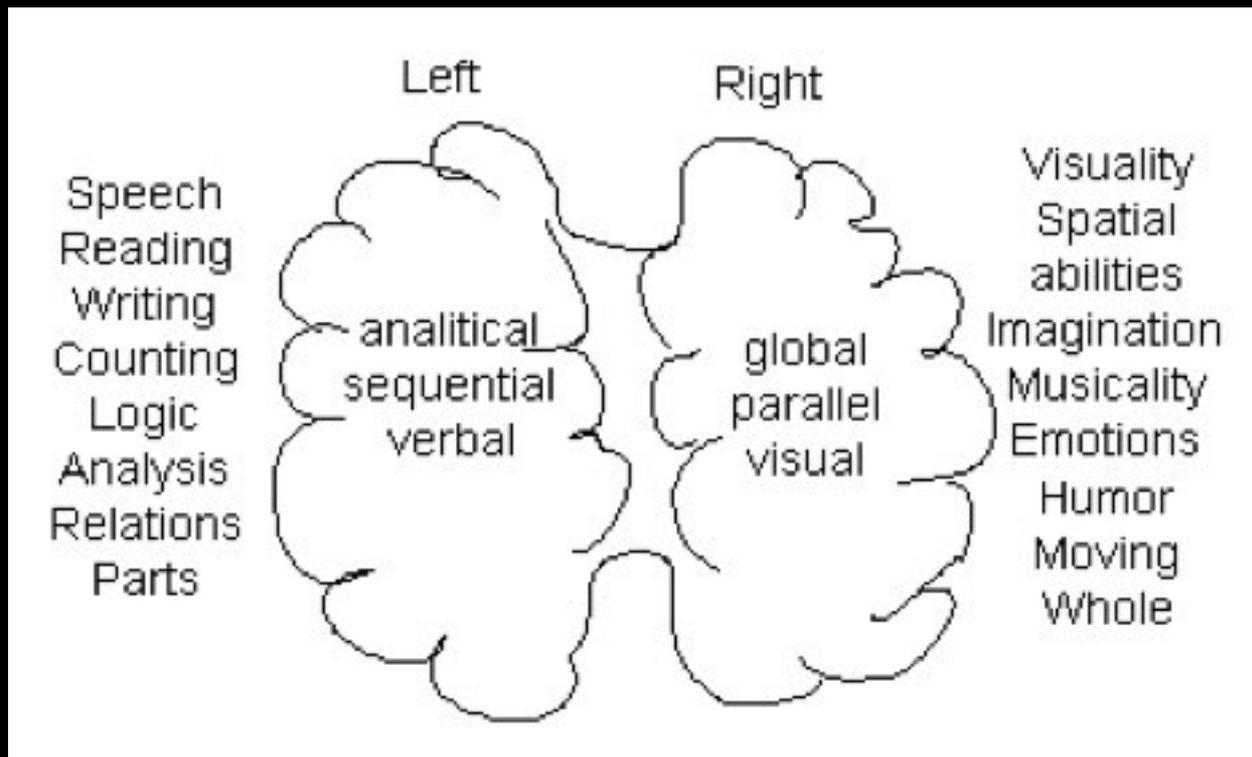
Learning Style - Teaching Style

- Approaches or ways of learning
- Involve educating methods that allow the individual to learn best.
- Most people favor some particular method of interacting with, taking in, and processing stimuli or information.
- Teaching should be adapted to the student's learning style.

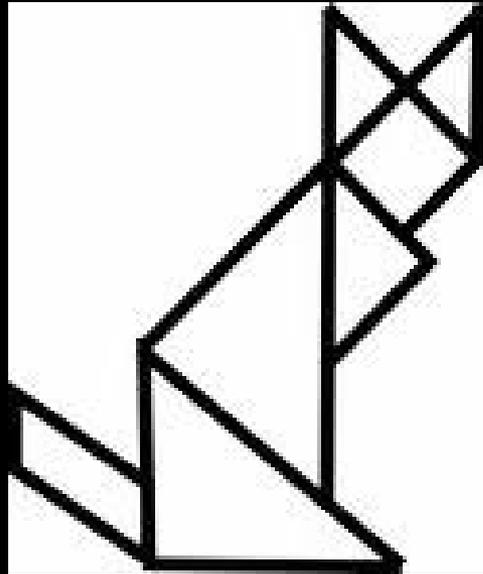
Learning Style - Teaching Style

- Learners who think in a holistic, visual way often find written language difficult.
- Many issues that visual thinkers and dyslexic learners struggle with stem from having to read or write sentences in which letters, words and information must be sequenced.

Right hemisphere dominance



Learning Style – Teaching Style



Visual thinkers see holistically, they see all the information at once, rather than in a linear order.

Written words are therefore like a foreign language to them, even in their mother

Learning or Teaching disability?

- Schools force non-linear thinkers out to the margins, quashing creativity and variety in order to produce students who will pass exams.
- Many marginalised learners are branded with a 'learning difficulty' label, simply because they think and learn in a way that is incongruous with traditional classroom teaching.

Learning or Teaching disability?

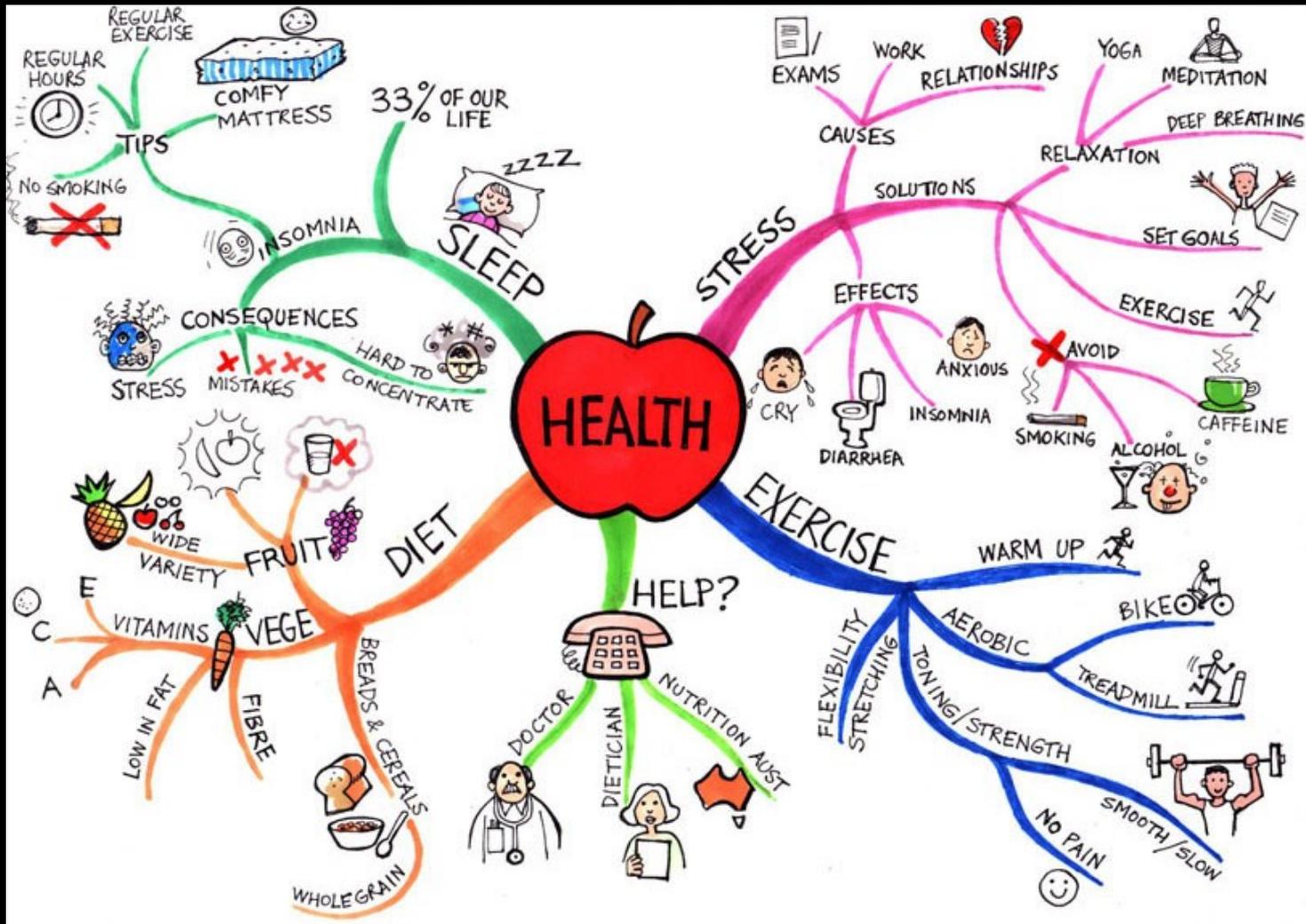
- Their difficulty often lies with the teaching methods they are subjected to, rather than their intellects.
- Even if a visual thinker is identified, teachers and parents can struggle to know how to encourage this 'different' way of thinking, often because they simply don't understand it.

Learning or Teaching disability?

Is there a way in which visual
thinkers can learn more easily?

A way in which they can process
information and communicate
more holistically and visually?

Mindmaps



www.ikonmap.com



Plan it! Link it! Map it! Make it an ikon!



Concept mapping tool

Username:

Password:

Sign in!

Icon *noun*

a sign or representation that stands for its object by virtue of a resemblance or analogy to it

Concept *noun*

a construct of characteristics of a thought

Map *noun*

a representation of relationships between objects and ideas

Ikon Concept Map

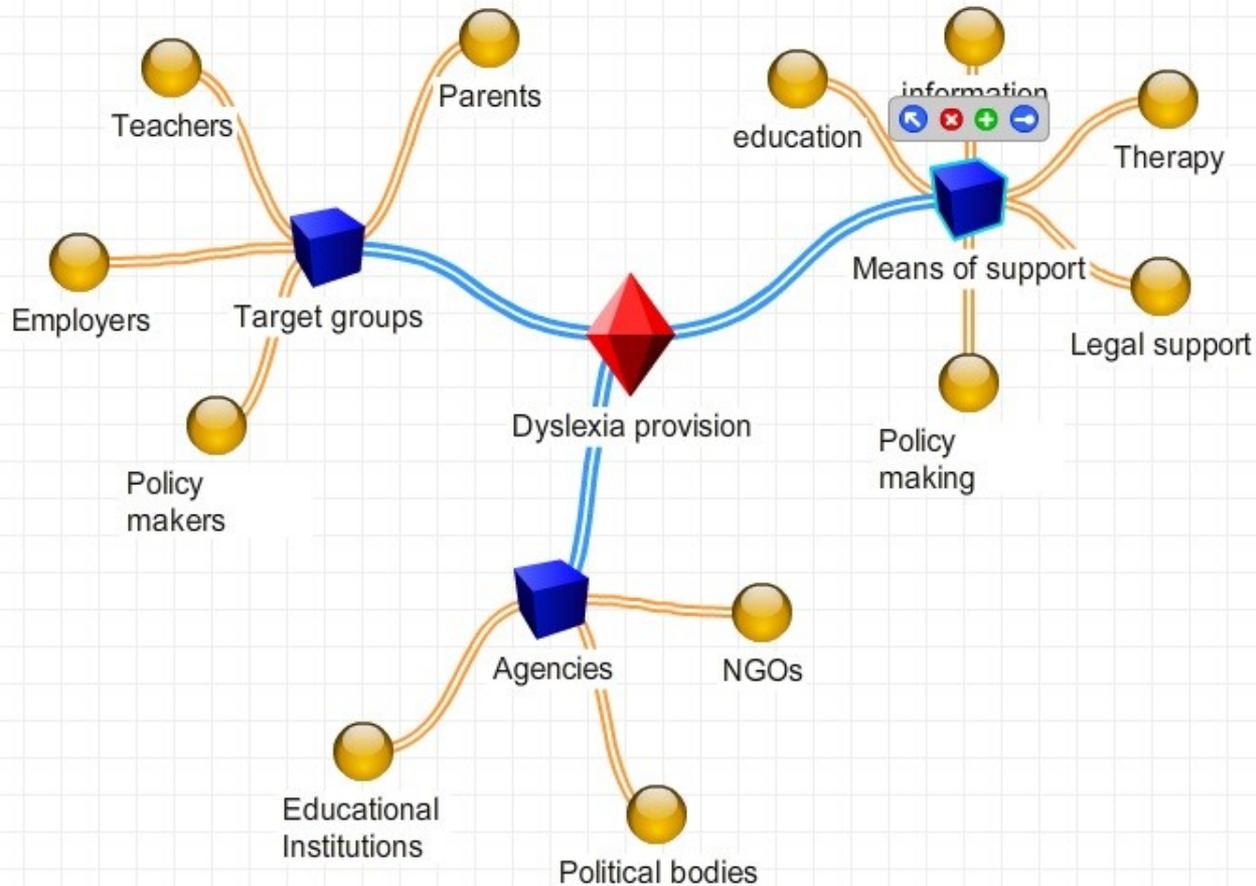
simply the easiest way to get ideas down

Want a permanent account?

- learn in minutes
- get your ideas down easily
- keep all your idea in one place

Sign up for free!

www.ikonmap.com



Dyslexia provision

- Target groups
 - Parents
 - Teachers
 - Employers
 - Policy makers
- Means of support
 - education
 - information
 - Therapy
 - Legal support
 - Policy making
- Agencies
 - NGOs
 - Political bodies
 - Educational Institutions

Educational cartoons



www.pixton.com

The screenshot shows a Mozilla Firefox browser window with the address bar displaying <http://pixton.com/uk/>. The page title is "Pixton™ - Comic Strip Creator - Make Your Own Web Comics Online - Mozilla Firefox 3.1 Beta 2". The main content area features a large illustration of a man in an orange shirt and hat waving, with a city skyline in the background. The word "Pixton™" is written in large, blue, bubbly letters. Below it, the text reads "Create your own comics! No drawing necessary – simply click and drag Share and remix with friends around the world". A prominent orange button says "START CREATING SIGN UP FOR FREE!". To the left, there is a small illustration of a mouse. A link says "Enter and read comics >". On the right, a yellow box promotes "FOR SCHOOLS Learning with Comics™" with the text "Private, virtual classroom Fun learning environment" and a "NEW!" banner. It includes a "LEARN MORE" link and a "Log In" button for users with a "Schools Account?". The browser's status bar at the bottom shows "Done" and "zotero".

Pixton™ - Comic Strip Creator - Make Your Own Web Comics Online - Mozilla Firefox 3.1 Beta 2

File Edit View History Bookmarks Tools Help

http://pixton.com/uk/

Pixton™ - Comic Strip Creator - Make...

Pixton™

Create your own comics!
No drawing necessary – simply click and drag
Share and remix with friends around the world

START CREATING
SIGN UP FOR FREE!

[Enter and read comics >](#)

FOR SCHOOLS
Learning with Comics™

Private, virtual classroom
Fun learning environment

NEW!

[LEARN MORE](#)

Already have a
Schools Account? [Log In](#)

Done zotero

Visual Learning

- A picture can holistically symbolise a piece of information without needing any sequencing at all.
- Unlike spelling or writing sentences, there is no right or wrong picture, so there is no pressure to get it right; each person can draw something completely unique to symbolise their thoughts.

Visual Learning

- Without the pressure to produce correct sequencing, visual thinkers are far more free to express themselves and are more likely to get out what is in their minds.
- The jump for a visual thinker from thoughts to words is a huge one, but from thoughts to pictures is a natural one.

Text Visualization

[Merge files](#)



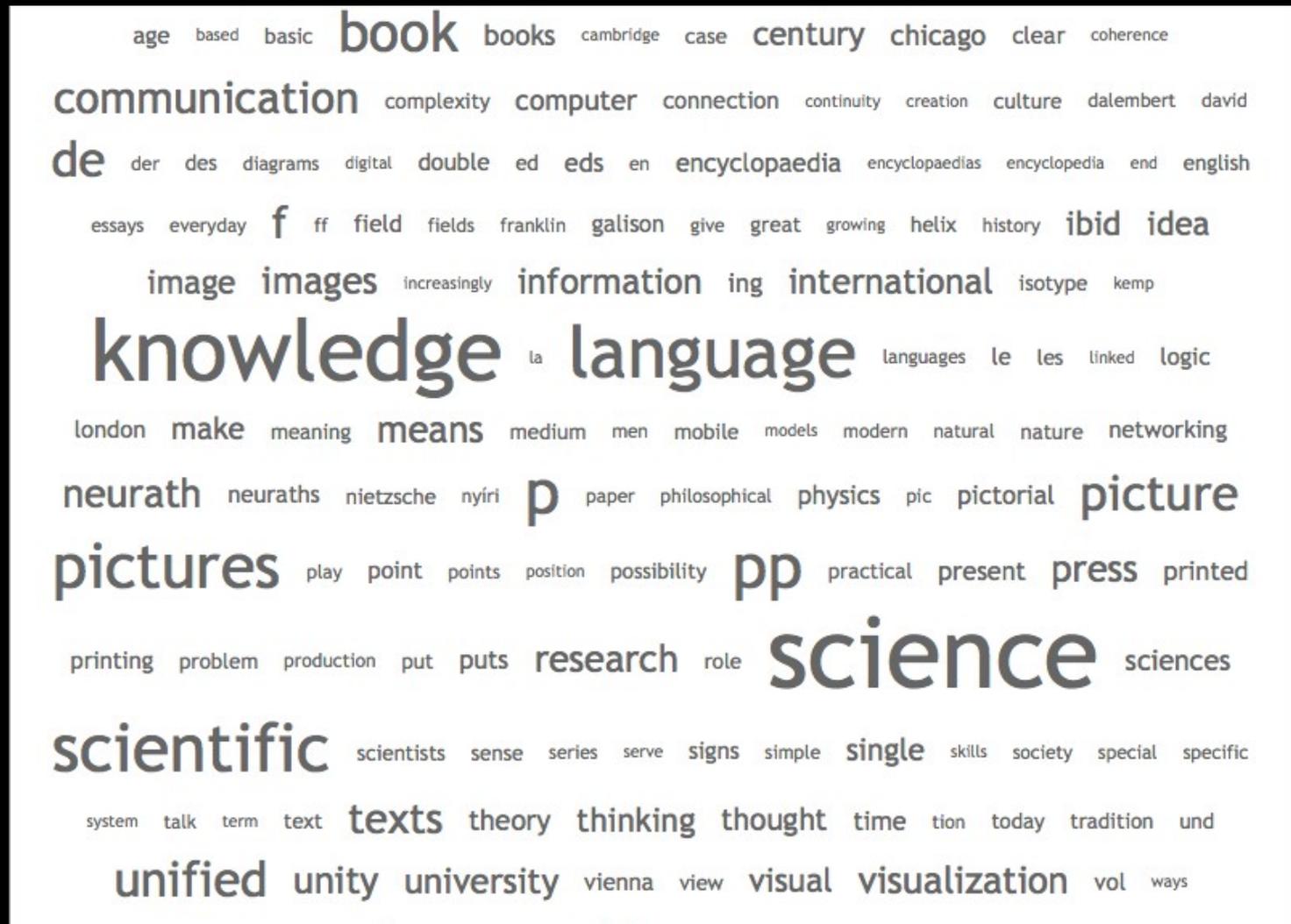
Wordcount

Load file from disk: Edit text Upload text file

Stopwords list: Table Tag cloud Excel file CSV file"/>

Nyíri Kristóf: From Texts to Pictures:
The New Unity of Science

Text Visualization



Screencasts and Videos

dysTalk

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Topics

Click below to go straight to a topic.

- [ADHD](#)
- [Dyscalculia](#)
- [Dysgraphia / Handwriting](#)
- [Dyslexia](#)
- [Dyspraxia](#)
- [Early Years / Preschool](#)
- [General Advice / Other](#)

Visual Thinking and Dyslexia

Speaker: Oliver West | Date: Monday 8 Sep 2008 | Time: 13:00



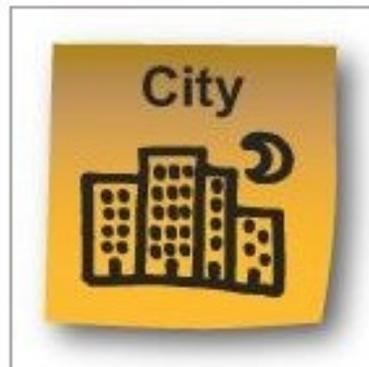
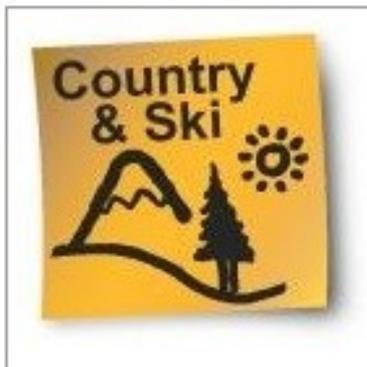
Visual communication

Hotels.com Visualiser



Start
a new trip profile

Place I'm visiting...



<http://hotels.visualdna.com>

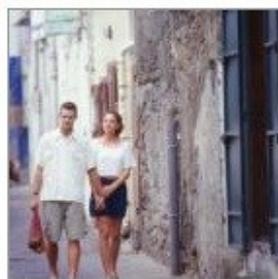
Visual Communication

This is the room style that suits me...



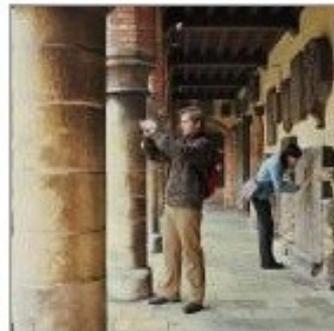
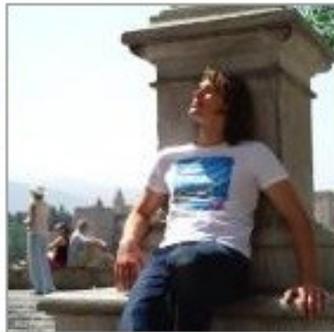
Visual Communication

I'm looking to spend most time doing...



Visual Communication

I'm looking forward to this feeling on my trip...



www.symbaloo.com



Inbox (2)

Navigation: + desk news feeds

google	wikipedia	Gmail	index	You Tube	Techno Dys	RNF	
blogok	hírek		facebook	V!Z	BBC	ikon	
könyvek	zene letöltés	weather	Google Translate widget: Translate from: Spanish Translate to: English search				
fordítás							
földrajzi hely	tour			yell	telefonszámok		

www.hottnotes.com

Things to do

- finalize schedule
- finish resume
- look for job
- sell/buy books
- pay credit card
- plan euro trip
- release hott notes 4

Prof Project

- What is it really like to be a CS major?
- What is it really like to be a professional CS?
- Appropriate CS collaboration
- ▶ due Thursday!**

Notebook

Check	None	Done
<input type="checkbox"/>	05/03/06 05/28/2006	
<input type="checkbox"/>	15/05/2006 08/30/2006	
<input checked="" type="checkbox"/>	4.0 beta 1 04/17/2006	
<input checked="" type="checkbox"/>	4.0 Checklist 04/16/2006	
<input type="checkbox"/>	Bank Accounts 01/11/2007	
<input type="checkbox"/>	beta 2 features 08/30/2006	
<input type="checkbox"/>	Statistics 04/17/2006	
<input type="checkbox"/>	Welcome to hott notes 4 04/19/2006	
<input checked="" type="checkbox"/>	What's New 04/19/2006	

Remember to do that thing!

Self Control

Drink LESS Coffee

<http://www.bf.hu/wordcount/>

Test - Monday
HW - Friday
Make a test question w/ answer - Friday
Final - last day of class

start | 3 Windows Expl... | Digg / News - Moz... | 3 Trillian | Untitled - Notepad | Notebook | Done | Adblock 0-2 | 2:58 AM

**Thank you for your
attention!**

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