A cartoon illustration of a young boy with spiky yellow hair, wearing a green shirt, sitting at a brown desk. He is holding a pencil and writing on a piece of paper. Above him is a large, light-yellow speech bubble with a black outline, containing the text "I can say it better than those letters will let me write it down".

I can say it better
than those letters
will let me write it
down

Why writing remains the most
challenging of literacy based tasks for
some students.

Dr Lorraine Hammond

Senior Lecturer, Edith Cowan University

Special Education Co-ordinator

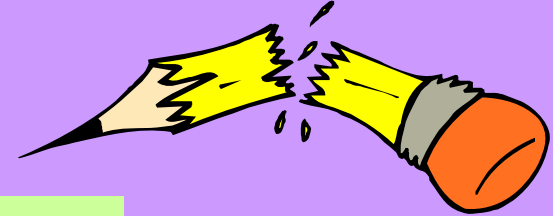
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Churchill Fellow, Dyslexia SPELD WA Board Member

Why writing is difficult



Processes that underpin writing



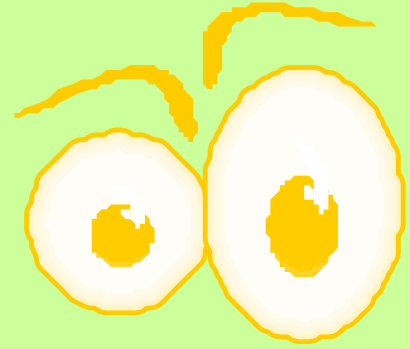
Teacher knowledge

~~Effective Strategies~~



One today, more in tomorrow's session.

**What's it like
being different?**

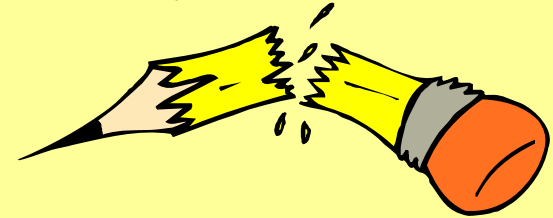


In a moment you are going to see a short film. Please make a mental note of the main events as I'll ask you to recall this information later in the session.

Why writing is difficult



Skills that underpin writing

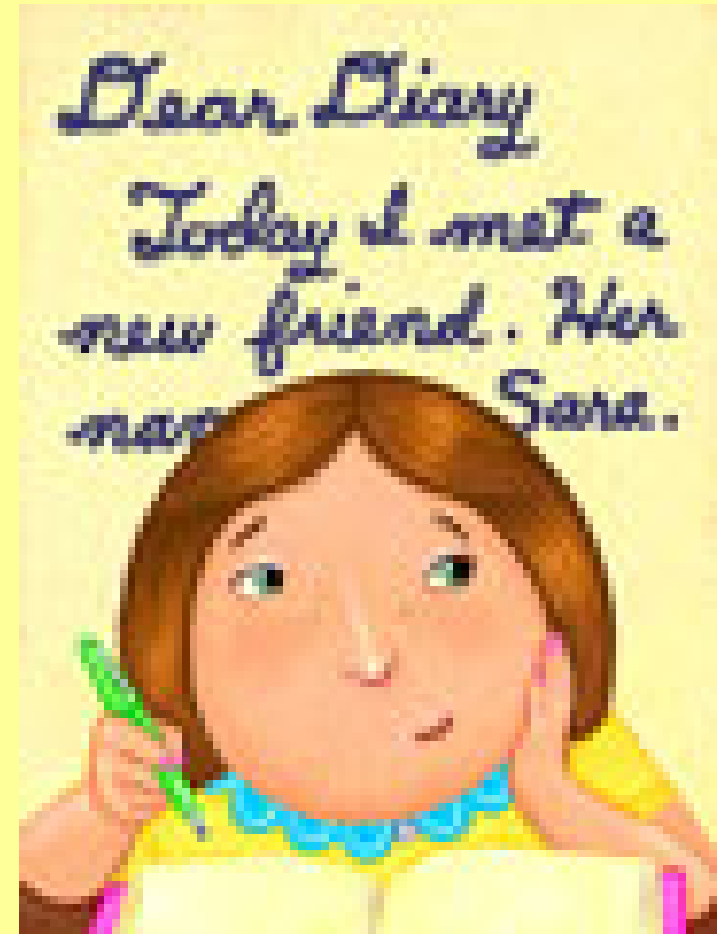


Effective Strategies



Writing about your feelings is a cathartic act that can lower blood pressure, reduce depression and boost the immune system

(Smyth, 1998; Swedlow, 1999).



..and many of these people are teachers and may forget how hard it can be.

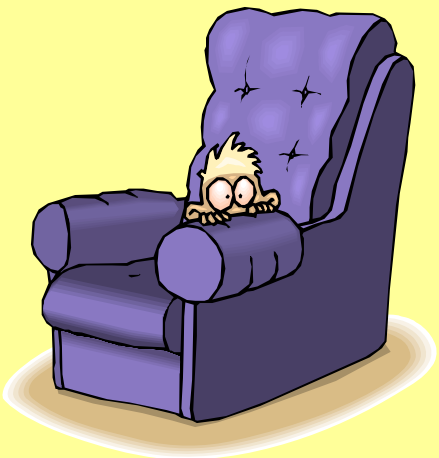
a) because of the task...

Imagine you were required to write 5,000 word paper on the following topic:

The transmission of thoughts onto paper calls for a delicate and highly complex process of neuro-developmental integration that synchronizes: attention, spatial and sequential production, language ability, higher-order cognition and motor skills (Levine, 1998). Discuss the impact of each function on writing development.

Take home paper, closed book exam, when is it due?

List the different skills you would have to employ to complete these task.



And these are but a few of the obvious...

- Attend to the task
- Generate some ideas, formulate a plan from a myriad of possibilities and hold it in memory
- Commit and stick to a theme
- Find the right words including topic specific vocabulary (i.e., neurodevelopmental)
- Put these words into cohesive order
- Pick up a pen / sit in front of the keyboard (...fingers poised)
- Write/type the words ensuring you spell them correctly
- Attend to grammar and other conventions
- Hold the theme of what you are writing about for the next 4,999 words
- Edit, proofread, revise...submit.



Did I forget to mention referencing?

b)...because of the myths

Writing does not need to be taught.

Writing is the mirror image of reading.

Writing is merely a motor act.

MYTH

- Written expression is the 'final frontier' of human communication, emerging after comprehension, speech, and then reading (Joseph, 1992). Writing is a culturally derived system of communication.
- Preschool children across the world start letters at the bottom and proceed in a right to left direction; until they receive instruction in letter formation for their particular written language (Berninger, 2002).
- Compared to Language by Ear, Language by Mouth and Language by Eye, the developmental process for Language Hand (writing) can take up to 20 years. Levine (1998) describes six stages.

writing with a pen is
hard. I am work out
with letters.

- The visual-spatial analysis requirements for letter production are more complex than the visual-spatial requirements for letter recognition in reading words or for letter selection on a computer keyboard (Berninger & Winn, 2006).
- Handwriting is not just a motor skill. Letter production requires a precise, complete visual-motor program called 'kinetic melody' (Luria, 1980) for planning and producing each sequentially ordered component stroke.

and..spoken and written language
are not the same



- Spoken language is superior to written.
- Spelling is much weaker than expected for his general ability.
- Has difficulty remembering the sequence of letters in some common words but makes orthographically reasonable choices when spelling phonetically.

Dysfunction	Impact
Memory	Poor spelling, weak word retrieval,
Sequential production	Organisation issues, lack of transitions and cohesive ties.
Language	Simplistic sentence structure. (Levine, 1998)

'Dyslexic Dysgraphic'

From: Jaon [mailto:Jason@ .com.au]

Sent: Tue 27/04/2004 5:57 PM

To: Lorraine HAMMOND

Subject:

Hopfully things will get better soon i think some of it is starting to come to me. i started off doing 4 units wich was verry hard. i was going out of my minde but dropping back to 2 units has made it ok.

I know that is it not going to be easy and I and I really want to achiev something that is so importent for me for the first time time in my life so look out books and pens her I come. Lorraine thanks for your healp I will torque to you soon .

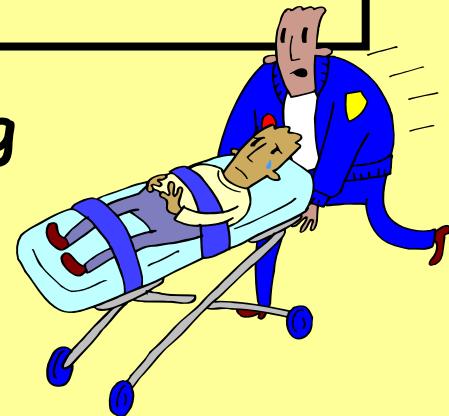
Secretary

+

Composer = Writing

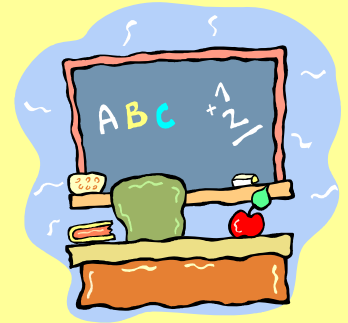
Spelling,
punctuation,
and grammar.

Planning, message
construction and
complexity of language.



Three common subtypes: Dyslexic Dysgraphia, Motor Dysgraphia and Spatial Dysgraphia

Deuel (1994)



Dyslexic Dysgraphia

- × Spontaneous writing poor, but legibility good
- × Spelling
- ✓ Legibility of copying
- ✓ Finger-tapping

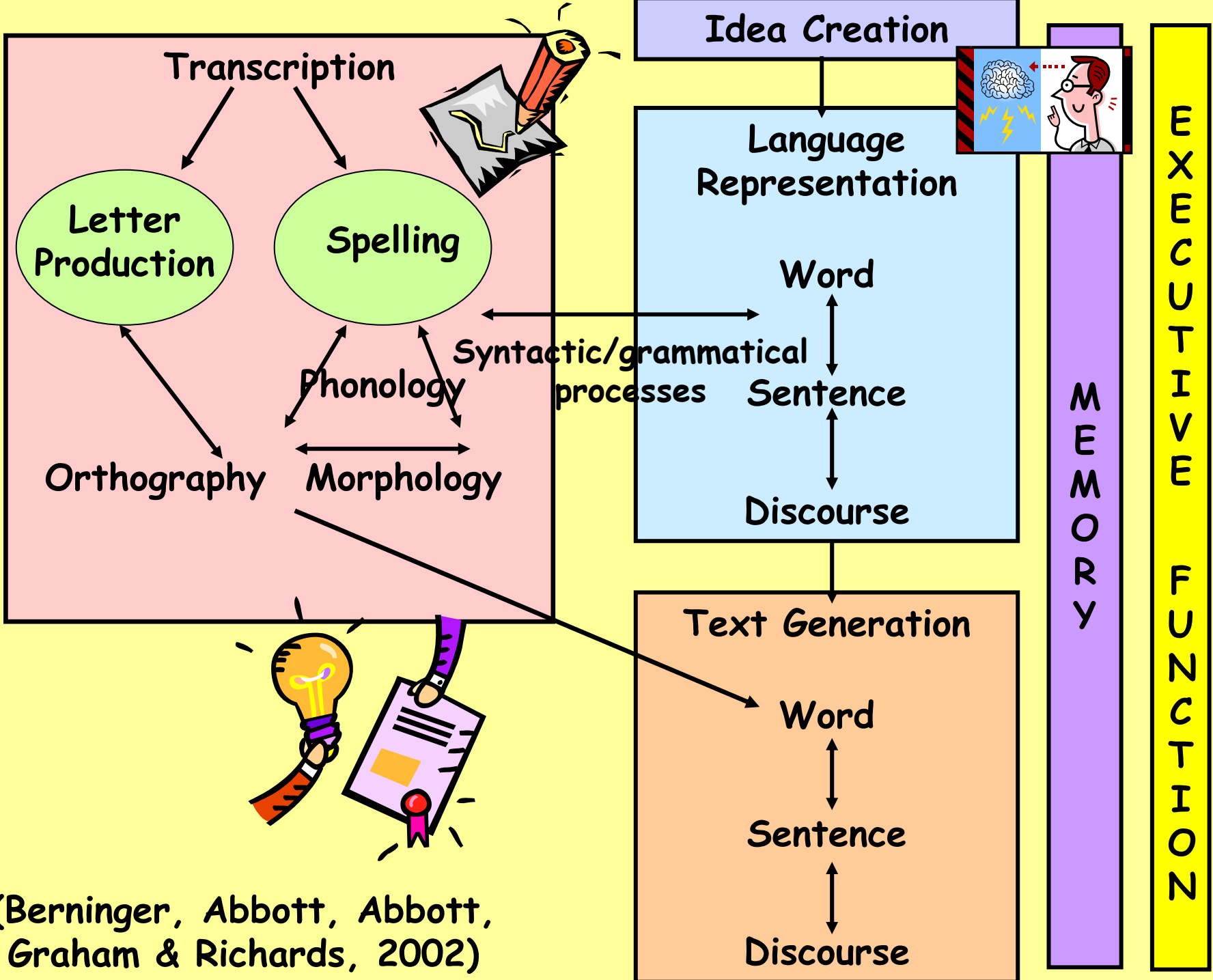
Motor Dysgraphia

- × Poorly legible spontaneous writing
- ✓ Spelling
- × Legibility of copying
- × Finger-tapping

Spatial Dysgraphia

- × Poorly legible spontaneous writing
- ✓ Spelling
- × Legibility of copying
- ✓ Finger-tapping

Finger-tapping = motor function but not language production



(Berninger, Abbott, Abbott, Graham & Richards, 2002)

Writing: an immense neurological juggling act

(www.allkindsofminds.com)

grammar and syntax

sentence construction

spelling

vocabulary

stylistic conventions
of different genres

handwriting

punctuation

visual spatial
organisation

revising



planning

Writing is a particular form of expressive language that requires the co-ordination of multiple jointly working brain structures for successful completion (Feifer & De Fina, 2002).

Writing: an immense neurological juggling act

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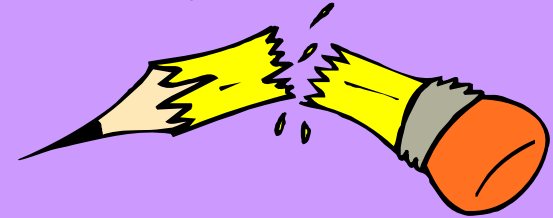
planning

"Spelling in isolation was quite good; however, when required to spell, punctuate, use grammar, and come up with appropriate ideas, the multiple demands on memory appeared to have exceeded capacity"
(Hammond, 2007, Diagnostic Assessment).

Why writing is difficult



Processes that underpin writing



Effective Strategies



Developmental Functions

(Levine, 2003) (see *Schools Attuned*)

Neurological

Attention

ADHD &
LD.

Memory

Language

Spatial Ordering

Sequential Ordering

Motor

Higher Order Thinking

Social Thinking

Environmental

Below Average

Above Average



(See p.4 Impact of Neurodevelopmental Dysfunction on Writing)

M E M O R Y

Phonological-orthographic memory - Memory for sound-symbol associations.

Visualisation - Memory for appearances of letters, letter patterns and words.

Retrieval of words - Precise naming and retrieval of specific vocabulary.

Semantic memory - Recall of ideas and facts.

Passage memory - Serial flow of ideas from what was written earlier in the passage to what will follow.

Recall of rules - Retrieval and rapid application of the mechanics of writing (e.g., capitalisation, punctuation, grammar and spelling).

Motor memory - Recall of letter formations / location of keys on keyboard.



From a neurological perspective...

Copying shapes is perceptually driven.

Posterior area of frontal lobe and storage of the motor programs in the cerebellum.

Free writing is perceptually and conceptually driven.

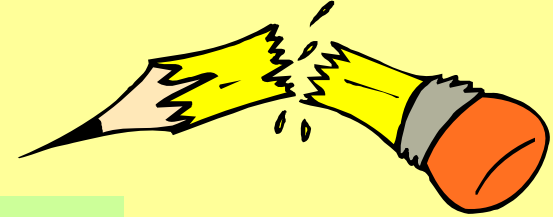
Motor activity + temporal lobe (spelling, vocabulary, sequencing, etc.) + frontal lobe (generation of ideas, attention, grammar etc.)

There is no one particular brain region yet to be designated or assigned to written production
(Carter, 1998)

Common writing difficulties



Skills that underpin writing



Teacher knowledge

Effective Strategies



What strategies would you teach students to support writing difficulties? Almost all pre-service teachers (n=150) in their final year of a teaching degree responded with:

- Modelled writing
- Shared writing
- Guided Writing
- Independent writing
- Make a class book
- Journal writing
- Language experience
- Text innovation
- Have-a-go-pad
- Show examples of different genres.



What is a strategy?

Definition: Purposeful and effortful procedure or plan for accomplishing a desired outcome.

(Wong & Berninger, 2005)

Some included:

- explicit instruction in handwriting.
- use writing frameworks.
- teach editing skills.
- teach grammar, punctuation and spelling.

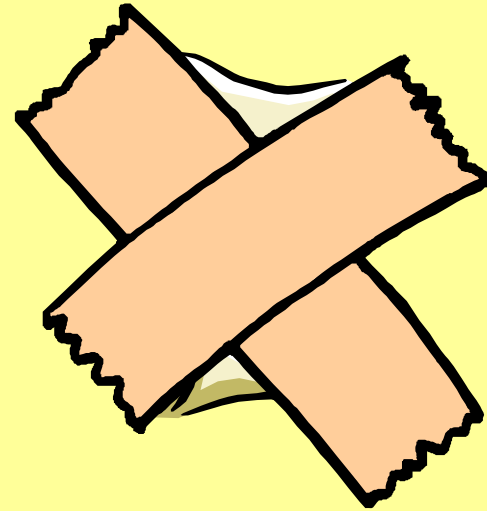
One reason, though obviously not true of all teachers nor in all classrooms, is that whole language and the process approach often place such an emphasis on the student's natural development of writing abilities within authentic contexts that many students - including those who struggle with writing within these classrooms - do not get instruction in writing and self regulation strategies that is as explicit as they need. (Harris & Graham, 1996; Graham & Harris, 2005, p. 10).

"Learning writing strategies through mini-lessons, writing conferences, or teachable moments often consists of hints, questions, or tactful responding aimed at promoting discovery of useful strategies....such instruction is not explicit enough or strong enough for most struggling writers (Freedman, 1993).



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Meta-Analysis

Provides a common language or 'Effect Size' statistic that has research significance. This is called power analysis:

Large (.80>)
Medium (.50 - .80)
Small (.20 - .50)

For example, assume that the effect size computed for a specific study is 1.0. This means that the average score for students in the experimental group is 1.0 standard deviation higher than the average scores of students in the control group.

Effective Instructional Practices for Students who experience difficulty with learning

Practice	Mean Effect Size
Mnemonic Instruction eg. mnemonic.docx	1.62
Self-Monitoring	1.36
Reinforcement	1.17
Self-Questioning	1.16
Drill and Practice	.99
Strategy Instruction	.98
Feedback	.97
Direct Instruction	.93
Visual Displays	.90
Computer-Assisted Instruction	.87

Explicit Instruction

(Kavale, 2007)

Effective Instructional Practices (Table con't)

Practice	Mean Effect Size
Repeated Reading	.76
Error Correction	.72
Early Intervention	Explicit Instruction
Ongoing Evaluation	
Peer Mediation	.64
Diagnostic-Prescriptive Teaching	.64
Peer Tutoring	.62
Positive Class Morale	.60
Grouping	.43
Increased Time	.38

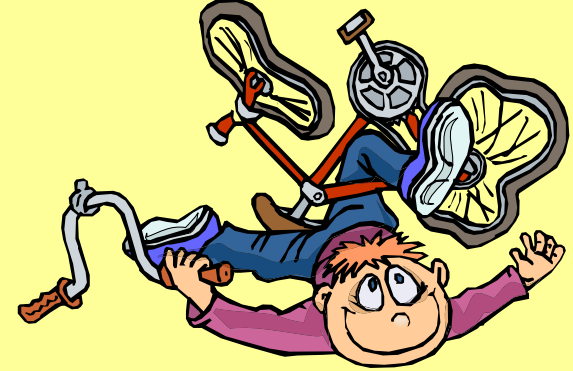
(Kavale, 2007)

Paul 6 years: "at risk"

- Identified in PP as having very poor fine motor skills
 - Particularly weak in PP at drawing and early writing
 - Referred to OT did not attend.
-
- Entering Year 1, Paul was considered developmentally below his peers and displayed highly immature behaviour.

Is handwriting *that* important?

- Motor difficulties impair compositional fluency so automaticity is compromised.



- Automatic letter writing is the single best predictor of length and quality of written composition in the middle primary years (Graham, et al, 1997)
- Poor handwriting is also the result of poor letter representation in memory...and training in handwriting fluency improved word recognition in reading. Teaching strengthens the connection between writing letters and decoding letters in at-risk writers (Berninger & Winn, 1997).
- Handedness (Paul is RH but is this a variable?)

So, what does this mean in terms of instruction?

Berninger (2005) argues that:

- A primary motor disorder usually leads to handwriting disorder, however if normal preschool motor, then the child may develop dysgraphia (non-motor) (Berninger, 2005).

(Paul has an identified primary motor disorder)

- Direct instruction in handwriting is critical and this should include visual cues and verbal mediation.



Early intervention program



- Paul's teacher is philosophically opposed to underachievement.
- She teaches handwriting 20 mins 4/5 and writing 40 mins 5/5 days = over 4.5 hours per week.
- All writing tasks are based on oral language activities, developmentally sequenced and highly structured.
- All aspects of writing are taught from the beginning of Year 1.

Explicit and timely instruction that is carefully sequenced and structured.

Excerpt: Writing Overview (Perks, 2006)

	Term 1	Term 2	Term 3	Term 4
MECHANICS				
Letters See sequence in hand out	Copy shapes (ie., circles, zig zags) then lower case letters	Upper case letters second, then revise lower case.	Reteach both upper and lower case based on need. Practice is ongoing throughout Year 1.	
Paper	Folded (4.5cms)	Lines (4.5cms)	Dotted 1/2s (3cms /1.5cm dotted lines)	Dotted 1/3s (3cm/1cm dotted lines)
Tools	Crayon	Pencil	Pencil	Pencil



Emma Grade 2-3 (7-7.5years)

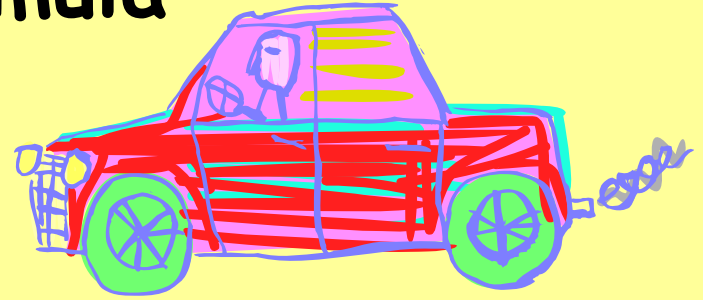
Does not like writing.



Writing is sometimes poorly constructed, lacking in depth and agrammatical.

Spelling can be variable.

Sentence Formula



Step 1

Define a simple sentence

CIP = Capital letter + Idea + Punctuation

Example: Emma went to the shops to buy a cold drink.

Write three simple sentences about what you did at recess.

Write four simple sentences describing your favourite character in the story.

Sentence Formula



Step 2

Define a complex sentence.

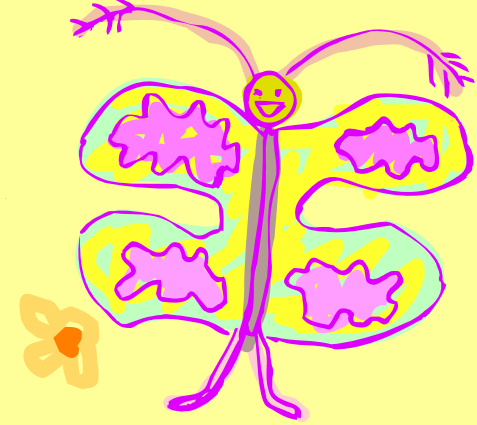
CIP = Capital letter + Idea + Joiner + Idea + Punctuation

Words such as *and*, *but*, *so*, *because*, *instead* are **joiners**. Don't allow students to overuse 'and'.

Example: *Emma went to the shops to buy a cold drink and a newspaper for her mum.*

Write 1 simple sentence + 1 complex sentence with 1 joiner + 1 simple sentence + 1 simple sentence with 1 joiner about what you did at recess.

1 Simple + 1 Complex (with 2 joiners) +
1 Simple + 1 Complex (with 2 joiners)



Emma met Lorraine and Mum at McDonalds for a coffee. It was very noisy outside **so** they sat inside near the window **and** enjoyed the air conditioning. Emma had a vanilla thick shake. After they finished their drinks Emma played on the equipment **and** Lorraine showed mum some photos from her trip **that** she had only just got back from the photo lab.

Emma, January 2005

Sentence Formula

Now it's your turn!

This is a complex sentence.

CIP = Capital letter + Idea + Joiner +
Idea + Punctuation



Words such as *and*, *but*, *so*, *because*, *instead* are joiners.

Example: *I wasn't allowed to go to David Jones yesterday because my husband thinks I have too many pairs of shoes.*

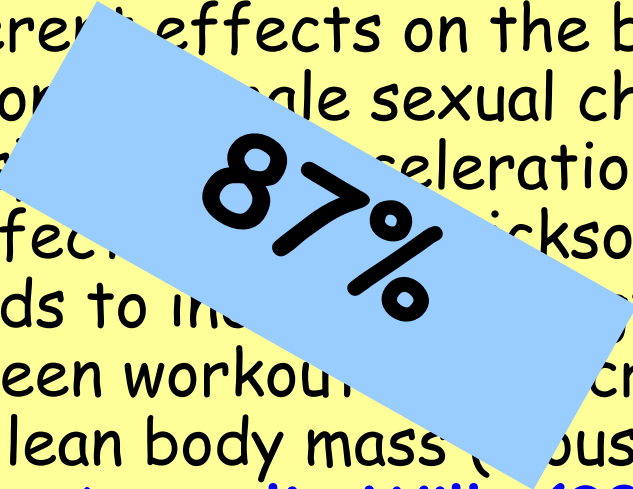
Write a recount comprising of: 1 simple sentence + 1 complex sentence with 3 joiners + 1 simple sentence + 1 simple sentence with 1 joiner about the film "For the Birds".

A flock of swallows land on a power line. The swallows start squabbling **and** annoying one another **until** they unite against an intruder **and** tease him instead. The tall goofy intruder does not realise they are being unkind. When he flies down to their part of the power line the effect is disastrous **and** the swallows are sorry for their actions.



Sports Science @ ECU First Year Assignment

Since the 1950's athletes have taken anabolic steroids to build muscle and increase their athletic performance. Anabolic steroids are synthetic derivatives of testosterone that have two different effects on the body - the development of secondary male sexual characteristics (androgenic effects) and the acceleration of muscle growth (anabolic effects) (Jackson & Lovett, 2005). Athletes use steroids to increase muscle growth, shorten recovery time between workouts, increase aggressiveness and lean body mass (Houston & Smyth, 2006). Last year in Australia Wills (2005) reported that 0.3% of the adult population had used anabolic steroids at some time in their lives and most users were "aware of the psychological effects it could have on their mental health as well as their physical health" (p. 71).



87%

Skilled writers...

- draw upon a rich store of cognitive processes and strategies for planning, text production, and revision to achieve their goals
- draw upon their knowledge of the patterns and schemas found in different writing genres
- are sensitive to the functions their writing is intended to serve and the needs and perspectives of their audience
- use effective self-regulation procedures throughout the writing process.



Skilled writers...

- draw upon a rich store of **cognitive processes** and **strategies** for **planning**, **text production**, and **revision** to achieve **their goals**
- draw upon their **knowledge** of the **patterns** and **schemas** found in different writing genres
- are **sensitive** to the functions their writing is intended to serve and the **needs and perspectives** of their audience
- use **effective self-regulation procedures** throughout the writing process.

