READING COMPREHENSION

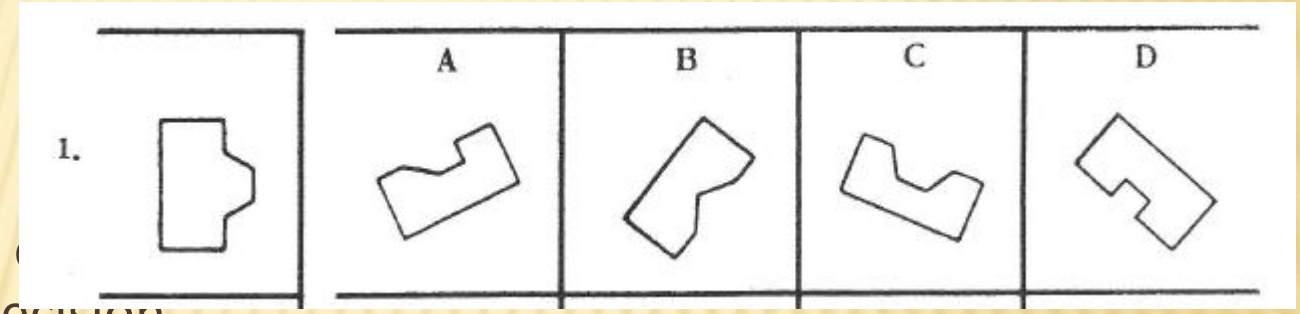
LEARNING DISABILITIES
WEEK 3 – 10.26-27.2015

READING COMPREHENSION DISABILITIES

- Specific disability when 1) poor comprehension, 2) sufficient decoding 3) average non-verbal intelligence
- Different subtypes
- Many of them meet the criteria for a diagnosis of learning disability
- However there is a variety of underlying problems

ADEQUATE NON VERBAL INTELLIGENCE AND SUFFICIENT READING DECODING

- Example of a group nonverbal intelligence test (Thurstone e Thurstone, 1985)



  - Example
  - Lexical decision

- ☐ Cielo
- ☒ Ciala
- ☐ Marazzona
- ☐ Acqua
- ☐ Lacchippo
- ☐ Sciaruppa
- ☐ Teviggia

Reading Comprehension Task: Prove MT di Comprensione

- Reading as preferred (typically silently) a passage and respond to multiple choice questions having the text still available

Prove MT di Comprensione
II elementare. Prova finale

Il nanetto che voleva la pera

Sotto un piccolo abete rosso in un bosco viveva un nanetto non più grande di una pigna.

Quando venne l'autunno il nostro omino si disse:

— È tempo che vada a far provvista di pere per quando verrà l'inverno.

Così il mattino dopo, il nanetto indossò la sua giacchettina, si mise in testa il berretto rosso, prese il sacco da montagna e si incamminò verso il villaggio.

Il nanetto attraversò felicemente il bosco e il prato e arrivò al frutteto.

Là le pere gialle gli sorridevano invitanti dall'albero. Ma, ahimè, le pere erano in alto, e il nanetto in basso.

Il vento che danzava gaiamente sulla cima dell'albero vide la difficoltà dell'omino e gli gettò davanti ai piedi una delle pere più belle.

Il nanetto non stava più in sé dalla gioia, fece al vento un profondissimo inchino e disse:

— Grazie mille!

Poi ficcò la pera nel suo sacco da montagna, se lo mise sulle spalle e tornò a casa.

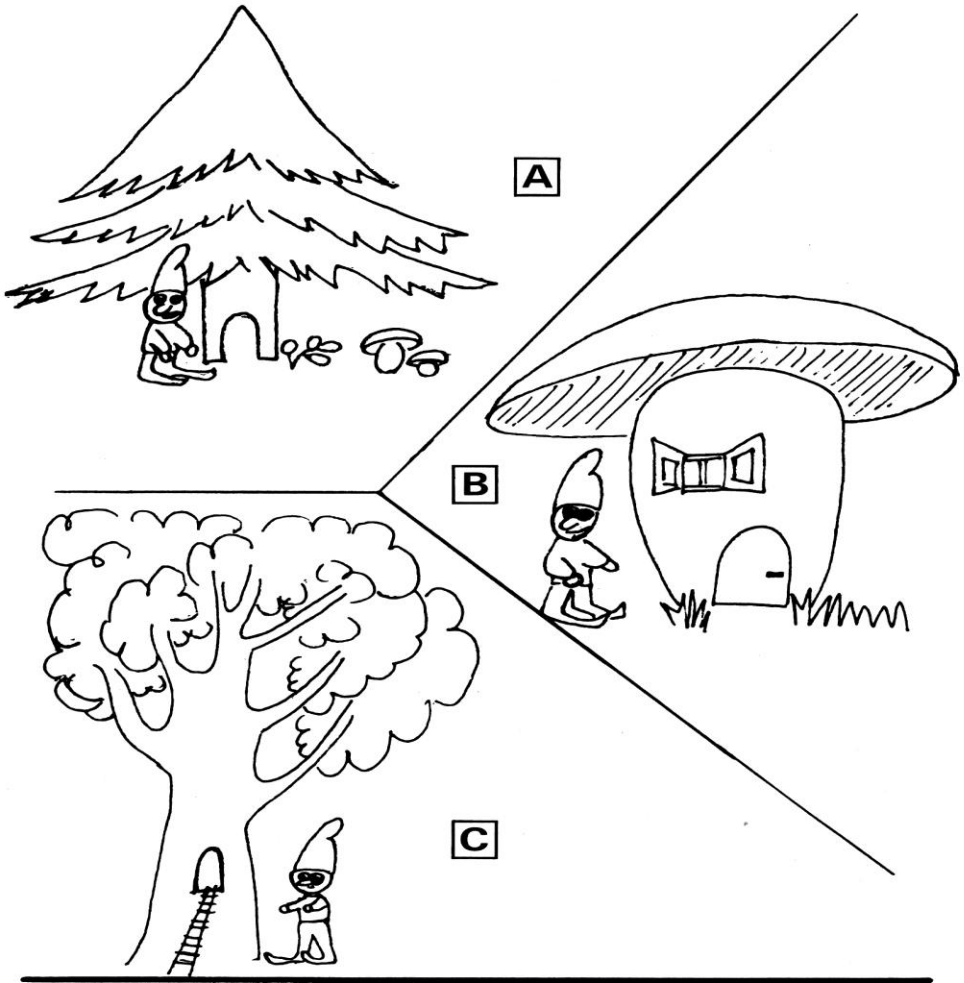
E che cosa pensate che ne abbia fatto, il nanetto, di quella pera? Ne mangiò una parte cruda, una parte ne fece marmellata, una parte la tagliò ben bene a pezzetti e la mise sotto zucchero per l'inverno, e dal resto ricavò del sidro dolce.

E ne bevve tanto che il mondo cominciò a girargli intorno, al punto che il nanetto non sapeva più se a danzare erano gli alberi o era lui. Alla fine cadde al suolo stanco morto e si addormentò.

Prove MT di Comprensione
II elementare. Prova finale

Rispondi alle seguenti domande facendo una croce sulla risposta giusta.

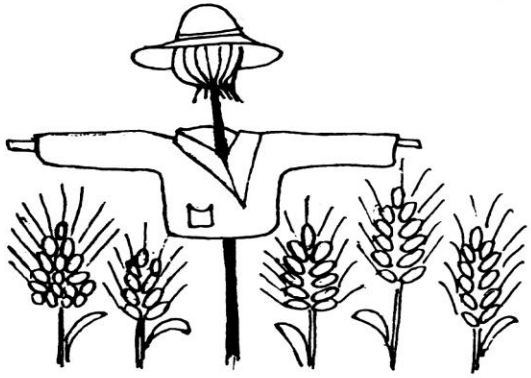
1. Dove abita il nanetto?



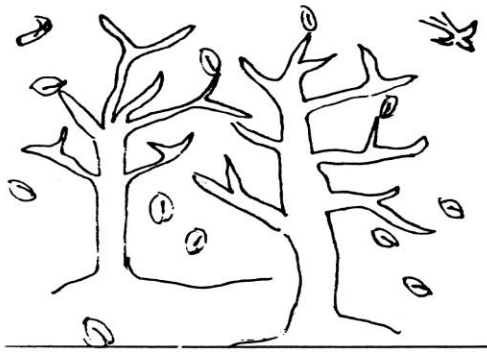
Prove MT di Comprensione
II elementare. Prova finale

2. In quale stagione succede l'episodio?

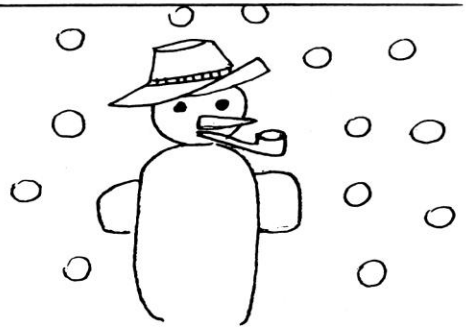
A



B



C

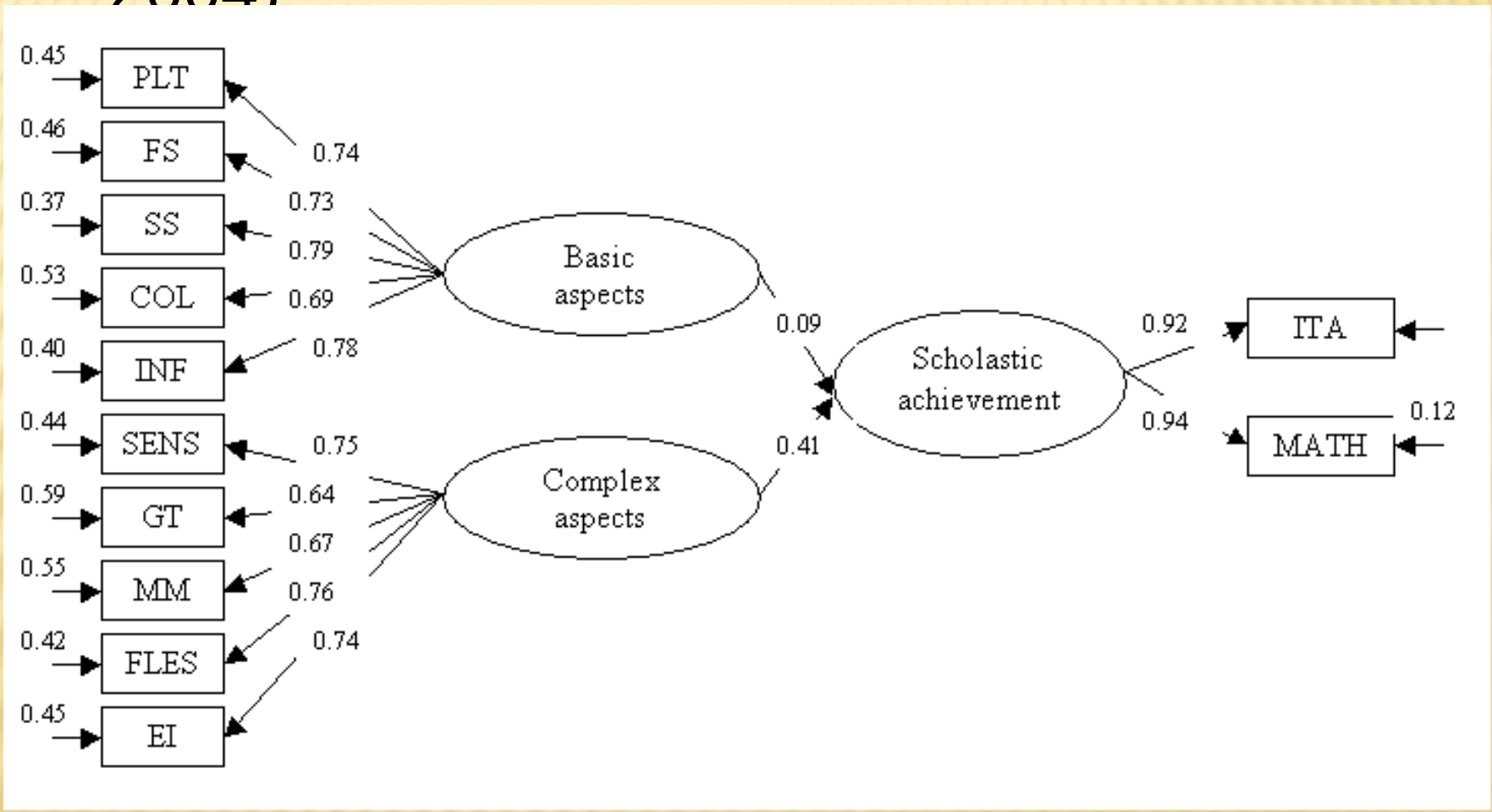


THE EFFECTS OF THE TASK ASSESSING RC

- Time?
- Text availability?
- Multiple choices questions?
- Type of text?

- Domain specific Components of the reading comprehension process (e.g.the ten components model)
- General underlying Cognitive Abilities

- Domain specific Components of the reading comprehension process (De Beni et al., 2004)



PLT (CHARACTERS, PLACES AND TIME) (STORY SCHEMA1)

Children must answer to questions like

1) «Who is the main characters?»;
2) «Where the story takes place?”;
3) “When the story takes place?”;
4) “What happens?”

Sometimes this informations aren’t explicited in the text and children have to make inferences to answer to these questions.

FS (EVENTS AND SEQUENCES) (STORY SCHEMA2)

1) Children is aked to differentiate among:
   - character's actions
   - inside events: thoughts, moods and intentions
   - outside events: what happens around the characters
   - description of characters and places
2) Identify the different types of events (character's actions, inside and outside events and descriptions) in different types of text
3) Chronological order (what happens before) and logical order (cause and effect)
4) Rebuild the chronological and logical orders when the informations in the text don't follow the typical order.

SS (SYNTACTIC STRUCTURE)

It refers to the syntattic constructions of the text, considering particulary:

- Puntuactions
- Articles
- Negations
- Pronouns
- Ambiguities
- Active/passive sentences
- Indirect speech
- Links

COL (SEMANTIC LINKS)

Children have to:

- link to each other some informations of the text
- link up informations that have a similar meaning
- link to each other ideas (e.g.: temporal and logical connections)

INF (LEXICAL AND SEMANTIC INFERENCES)

Making inferences means:

1) Understand links among words and pictures of a text
2) Develop the informations owned about an argument by the informations read previuosly
3)Create links between previous and new informations

There are three types of inferences:

- Lexical inferences
- Semantic inferences
- “Inferenze ponte” (connection inferences)

SENS (TEXT SENSIBILITY)

1) Identify the type of the text

2) Judge the difficulty of a text

3) Identify the passages more difficult in a text

GT (TEXT'S HIERARCHY)

Learn to identify the more important elements of a text and order them based on an importance's order

- Hypothesize what the text speaks about based on the title
- Underline the most important elements
- Find elements or ideas expressed in different ways
- Find the essential meaning of each sentence
- Find the focus idea of a text
- Order hierarchically elements

MM (MENTAL MODELS)

Children have to find the most important informations about the text and link them in a network of meanings. This is the Mental Model of the text.

(e.g.: Understand the meaning of a word thanks to what the text says)

FLES (FLEXIBILITY)

1) There are different strategies to study a text

2) The reader must choose the better strategy to study a text based on the aim

3) The reader must choose the better strategy to study a text based on the text's type.

Skim reading strategy

Detailed analysis strategy

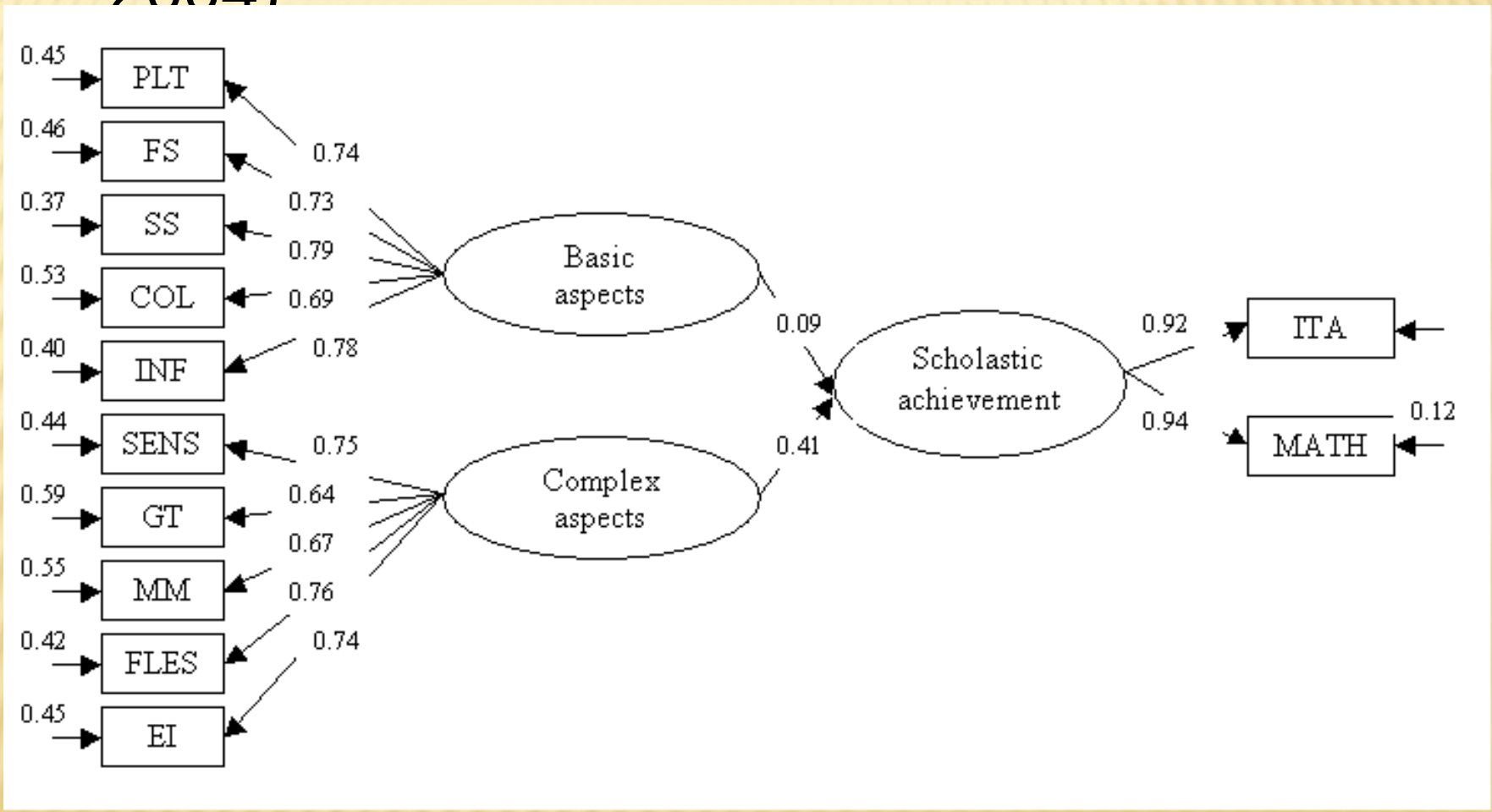
Global view strategy

EI (ERRORS AND INCONGRUENCIES) (ON-LINE MONITORING)

1) Children have to compare the text's informations with the previously knowledge and decide if they are congruent or not

2) Understand that some expressions can hide other meanings

- Domain specific Components of the reading comprehension process (De Beni et al., 2004)



TEXT REPRESENTATIONS (ALSO CALLED MENTAL MODELS OR SITUATIONAL MODELS)

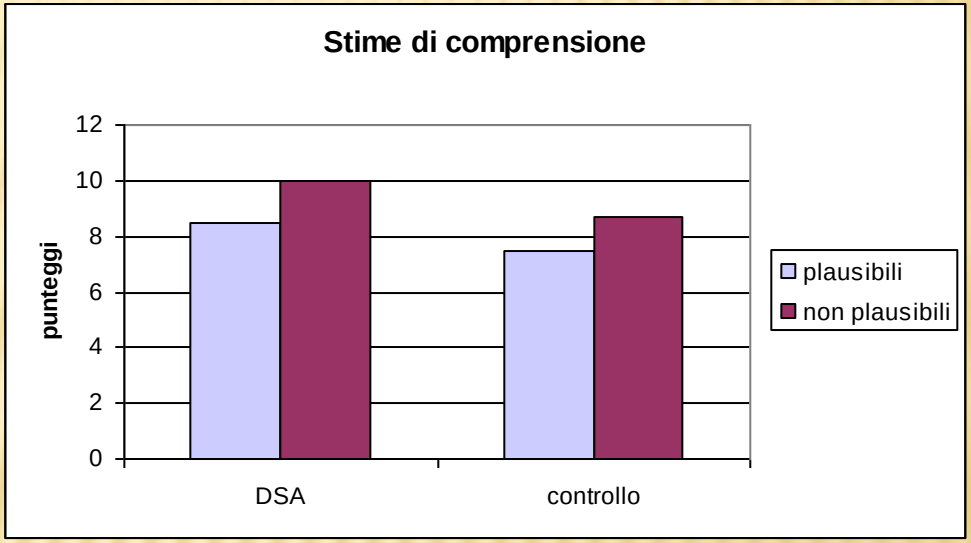
- Microstructure vs macrostructure
- Microstructure: set of interrelated idea units maintained in memory
- Macrostructure (general mental model): organisation of microstructures in a structure involving global topics (e.g. structure of a story or story schema)

EXAMPLE OF STORY SCHEMA (CASE OF A SUSPENSE STORY)

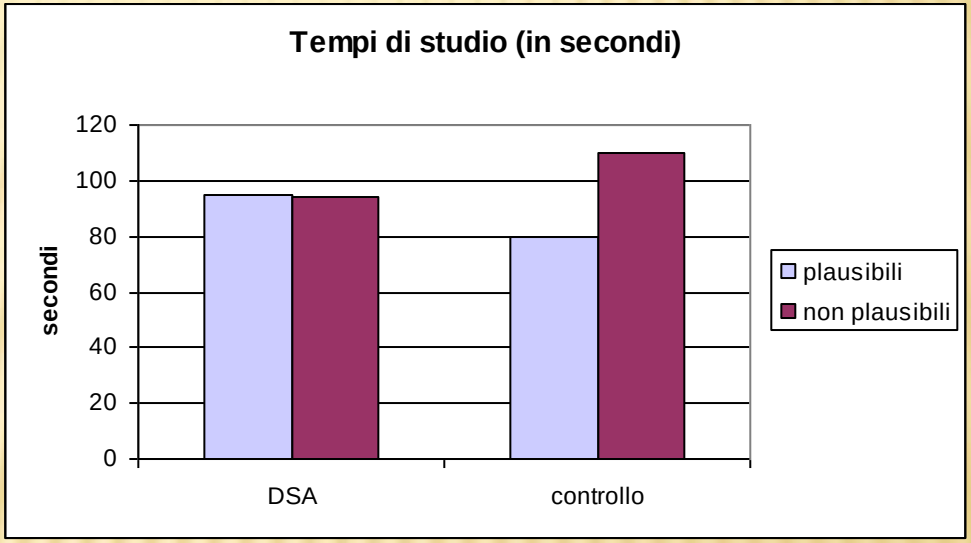
- 1 Goal of the main character
- 2 Story proceeds
- 3 Something disturbing happens and creates suspense
- 4 Runs for solving
- 5 Solution
- 6 Situation becomes harmless

MONITORING THE READING PROCESS

MONITORING COMPREHENSION OF PLAUSIBLE AND LESS PLAUSIBLE PASSAGES BY LDS (DSA) AND CONTROLS



TIME DEDICATED TO PROCESS THE PASSAGES



FOUR MAIN FACTORS UNDERLYING READING COMPREHENSION AND READING COMPREHENSION FAILURES

- Oral language comprehension
- Metacognition
- Working memory
- General intellectual skills

ORAL LANGUAGE COMPREHENSION

- High correlation, but especially if the same texts are used

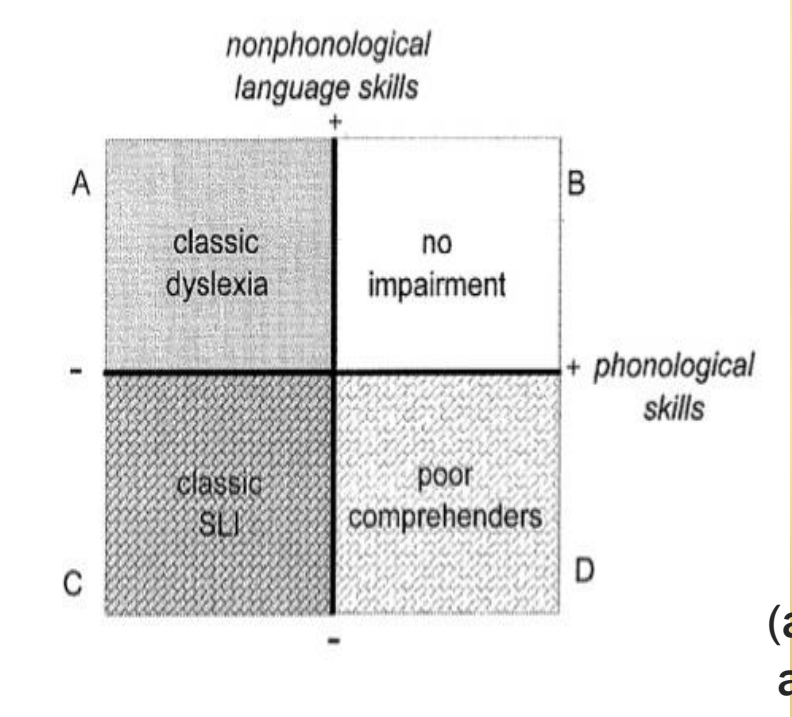
- On the contrary the usual oral comprehension refers to sentence comprehension, use of the contextual elements etc.

PROBLEMS IN ORAL COMPREHENSION AND SLI

- In general academic difficulties are frequent in children with a history of preschool SLI
- Notice that language problems in SLI are highly heterogeneous and only some cases present problems in language comprehension
- Notice that typically good discourse comprehenders (after 8 years) have a low reliance on sentences and then they are not necessarily better sentence comprehension

COMPREHENSION = READING DECODING X ORAL COMPREHENSION

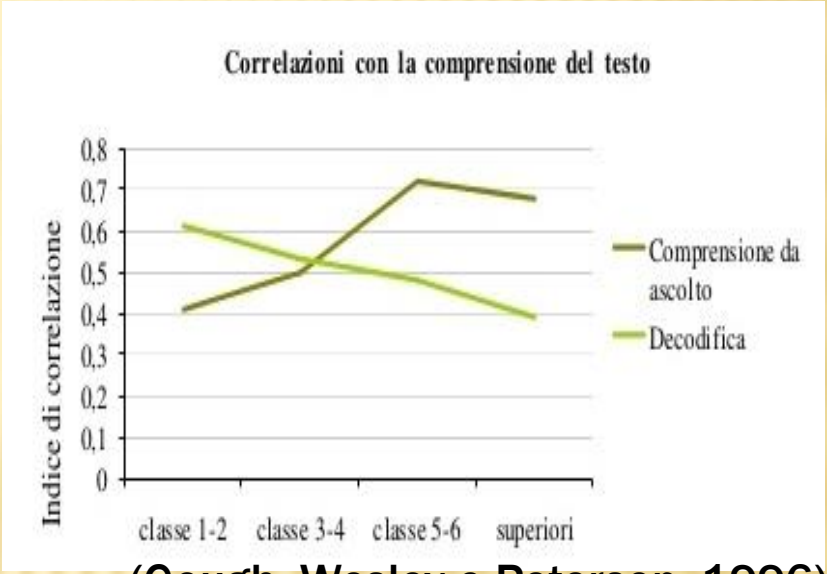
- Simple view of reading (Gough e Tunmer, 1986)



(adapted from Bishop and Snowling, 2004)

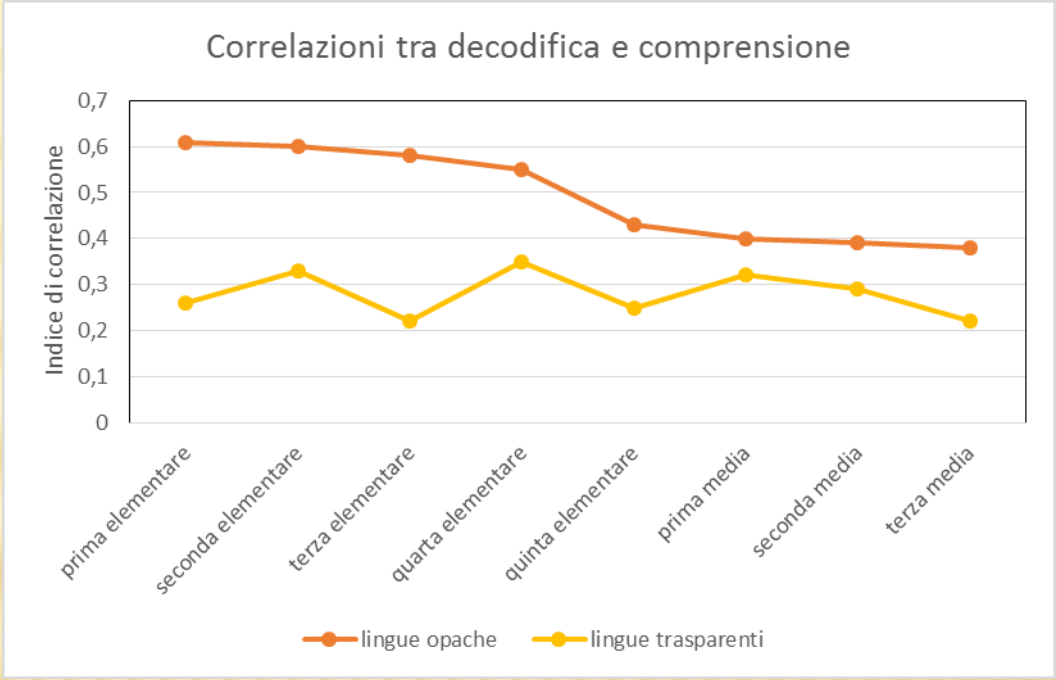
CORRELATIONS BETWEEN READING COMPRENSION AND A) DECODING (DESCENDING LINE) B) ORAL COMPREHENSION

- American data
- What with a transparent language?



(Gough, Wesley e Peterson, 1996)

CORRELATIONS BETWEEN READING DECODING AND COMPREHENSION IN ITALIAN CHILDREN ACCORDING TO THE GRADE



EARLY LINGUISTIC ELEMENTS RELATED TO COMPREHENSION

- Grammar and morphology
- Vocabulary

THE STUDY BY MUTER ET AL. (2004)

- Reading comprehension at 6.9 is predicted by word decoding at 5.9, but both aspects are also predicted by:
- 1) vocabulary knowledge
- 2) Grammatical awareness

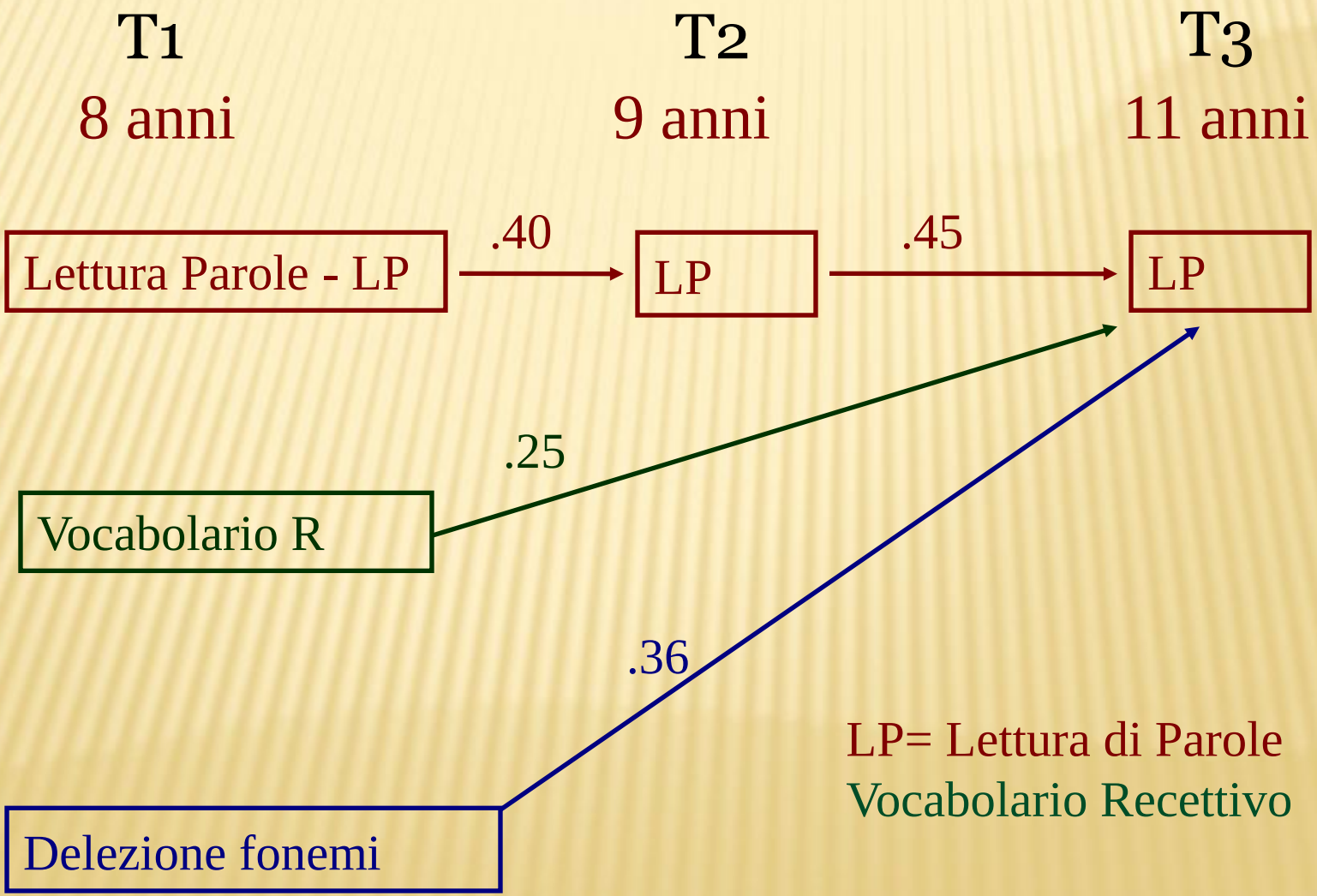
Comprehension vs decoding

Evidence for partial independence:

- Precursors
- Underlying processes
- Correlational patterns
- Development
- Disorders
- Specificities of treatment

Cain et al.(2004): Word reading T1-T3

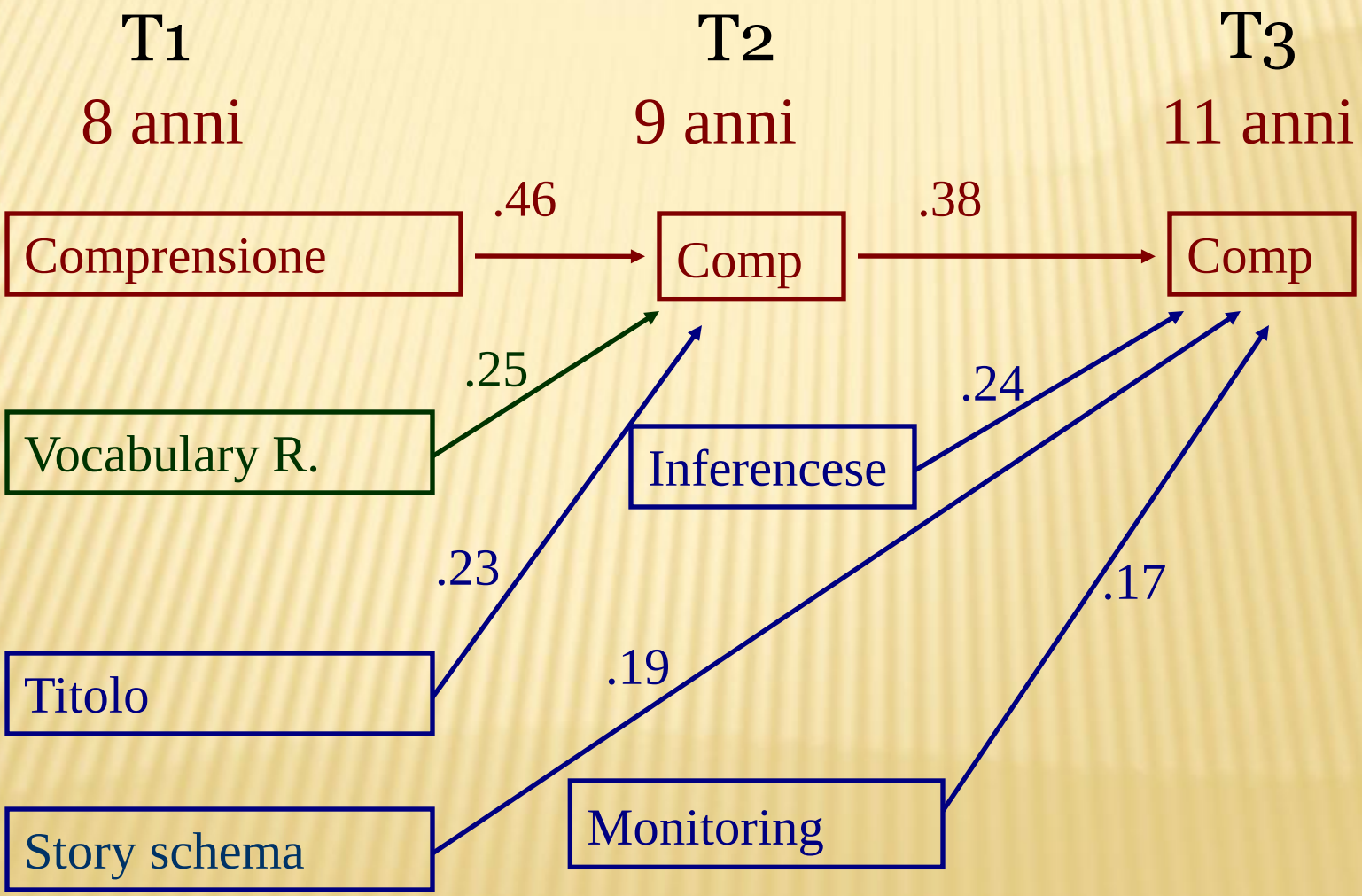
PRECURSORS



LP= Lettura di Parole
Vocabolario Recettivo

Cain et al.(2004): Comprehension T1-T3

PRECURSORS COMPRENSIONE



PRAGMATIC SKILLS

- The reader must go beyond the information given using knowledge and extratextual elements
- The oral language offers a series of extratextual elements

METACOGNITION

- Both ideas on how we read and control/monitoring processes during reading affect our reading

Exp 4: Participants

- LDs (*n*=47; *M*=16 years)
- Controls (*n*=46; *M*=16.17 years)

Exp 4: Materiali e Procedura

- Passage (1351 words; “The Art Thief”, Marsh, 2004)
- Recognition test
  - 32 sentences: 16 target e 16 distractors
  - distrattori: 8 frasi semanticamente relate al contenuto della storia (4 inferenze e 4 parafrasi) e 8 frasi “nuove” che includevano una nuova combinazione di dettagli del testo
- Test di riconoscimento *sì/no* + giudizi Remember/Familiar

Exp 4: Risultati

	Group			
	Poor learners		Controls	
	M	*SD*	*M*	*SD*
Hits **	.70	.17	.77	.16
False Alarms**	.52	.18	.41	.14
Inferences **	.53	.28	.32	.21
Paraphrases	.55	.27	.51	.26
Novel sentences	.50	.22	.42	.17

Item type x group: F (1, 91) = 18.50, $p < .001$, $\eta_p^2 = .17$
Distracter type x group: F (2,182) = 4.65, $p = .01$, $\eta_p^2 = .05$

Exp 4: Risultati

	Group			
	Poor learners		Controls	
Remember responses	M	SD	M	SD
Hits*	.42	.20	.57	.21
False alarms	.26	.17	.22	.11
Inferences**	.31	.29	.11	.15
Paraphrases	.23	.26	.25	.22
Novel sentences	.25	.14	.25	.20
Familiar responses				
Hits	.27	.14	.20	.15
False alarms	.25	.15	.19	.12
Inferences	.22	.21	.21	.17
Paraphrases	.31	.26	.26	.21
Novel sentences *	.24	.15	.16	.17

INTELLIGENCE

- Intelligence includes a series of general processes (e.g. reasoning, inferencing, etc) that are involved in reading comprehension

HOMEWORK

- Find an argument emphasizing and one limiting the role in reading comprehension of each of the four main factors: 1) General intelligence/reasoning, 2) Metacognition 3) Language/oral comprehension 4) Working memory
- Discuss the implications of different ways of assessing reading comprehension

TESTS	GROUPS				t	p
	Experimental		Control			
	X (n)	s.d.	X (n)	s.d.		
1991-92						
ORAL COMPR./ MEMORY						
Tv-text1	1.93(56)	1.04	2.40(54)	1.07	2.33	0.21
Tv-images1	2.60(56)	0.97	2.63(54)	1.04	0.11	0.91
Tv-text2	3.22(56)	1.30	3.77(54)	0.91	2.58	0.011
Tv-images2	2.79(56)	0.87	2.98(54)	0.92	1.12	0.26
GENERAL SKILLS						
Dictation	12.19(26)	7.06	9.61(26)	5.15	1.50	0.14
PMA-VM	7.96(26)	3.25	11.88(26)	5.14	3.29	0.002
PMA-R	7.53(26)	3.92	11.26(26)	3.95	3.42	0.001
COMPREHENSION						
Inc1	3.03(26)	1.99	5.11(26)	2.08	3.67	0.001
Story1	3.50(26)	1.67	5.30(26)	1.51	4.07	0.000
METACOGNITION						
Metac1	9.54(12)	1.77	12.25(12)	1.28	4.28	0.000
WORKING MEMORY						
F.I.T. corr	22.11(26)	4.16	24.92(26)	5.09	2.18	0.035
F.I.T. level	4.53(26)	1.02	5.23(26)	1.21	2.22	0.031
1992-93						
METACOGNITION						
Metac2-total	35.83(34)	4.66	39.92(34)	2.78	4.39	0.000
Metac2-cont	10.97(34)	2.00	12.01(34)	1.44	2.46	0.017
Metac2-strat	7.23(34)	1.55	8.23(34)	1.04	3.11	0.003
Metac2-sens	8.88(34)	2.22	10.41(34)	1.81	3.11	0.003
Metac2-goals	8.75(34)	1.11	9.26(34)	0.80	2.18	0.033
GENERAL SKILLS						
Accuracy	4.50(34)	2.36	2.66(34)	1.50	3.82	0.000
1993-94						
WORKING MEMORY						
Digit test	3.42(20)	0.67	3.71(20)	0.82	1.19	0.24
Reading Span	2.22(20)	0.80	2.87(20)	0.60	2.89	0.006
Random gener.	4.36(20)	0.08	4.26(20)	0.15	2.57	0.014

Cain & Oakhill (2006)

Table 1. Time 1 descriptive statistics for good comprehenders, poor comprehenders and the total sample

Measure	Total sample ($N = 102$)	Poor comprehenders ($N = 23$)	Good comprehenders ($N = 23$)	$t(44)$	Effect size Cohen's d
Chronological age	7, 07 (3.28)	7, 07 (2.88)	7, 07 (3.44)	0.51	
Neale reading accuracy	7, 10 (6.27)	7, 10 (4.58)	7, 10 (5.30)	0.29	
Neale reading comprehension	7, 04 (11.19)	6, 05 (9.22)	8, 04 (6.64)	9.51***	2.74
BPVS	102.99 (9.50)	98.57 (11.69)	106.30 (6.36)	2.79**	.82
Gates-MacGinitie	34.30 (4.63)	34.26 (4.22)	35.74 (4.75)	0.36	
VIQ	10.42 (2.18)	9.56 (1.80)	10.67 (1.99)	1.98(*)	.58
PIQ	10.45 (2.47)	9.85 (3.03)	11.15 (2.32)	1.64	
TROG	21.61 (2.67)	20.96 (2.27)	22.17 (2.94)	1.55	
WM verbal	11.30 (3.05)	10.30 (2.73)	12.57 (3.51)	2.43*	.72
WM digit	10.68 (3.05)	10.35 (2.82)	10.83 (3.27)	0.53	
Story anagram	.80 (.16)	.74 (.15)[a]	.84 (.17)	2.06*	.62
Story titles	2.93 (1.15)	2.23 (1.08)	3.65 (.77)	5.11***	1.51
Monitoring	14.54 (3.10)	12.74 (3.32)	16.17 (2.25)	4.11***	1.21
Inference and integration	14.84 (3.75)	13.60 (3.91)	16.00 (3.38)	2.22*	.66

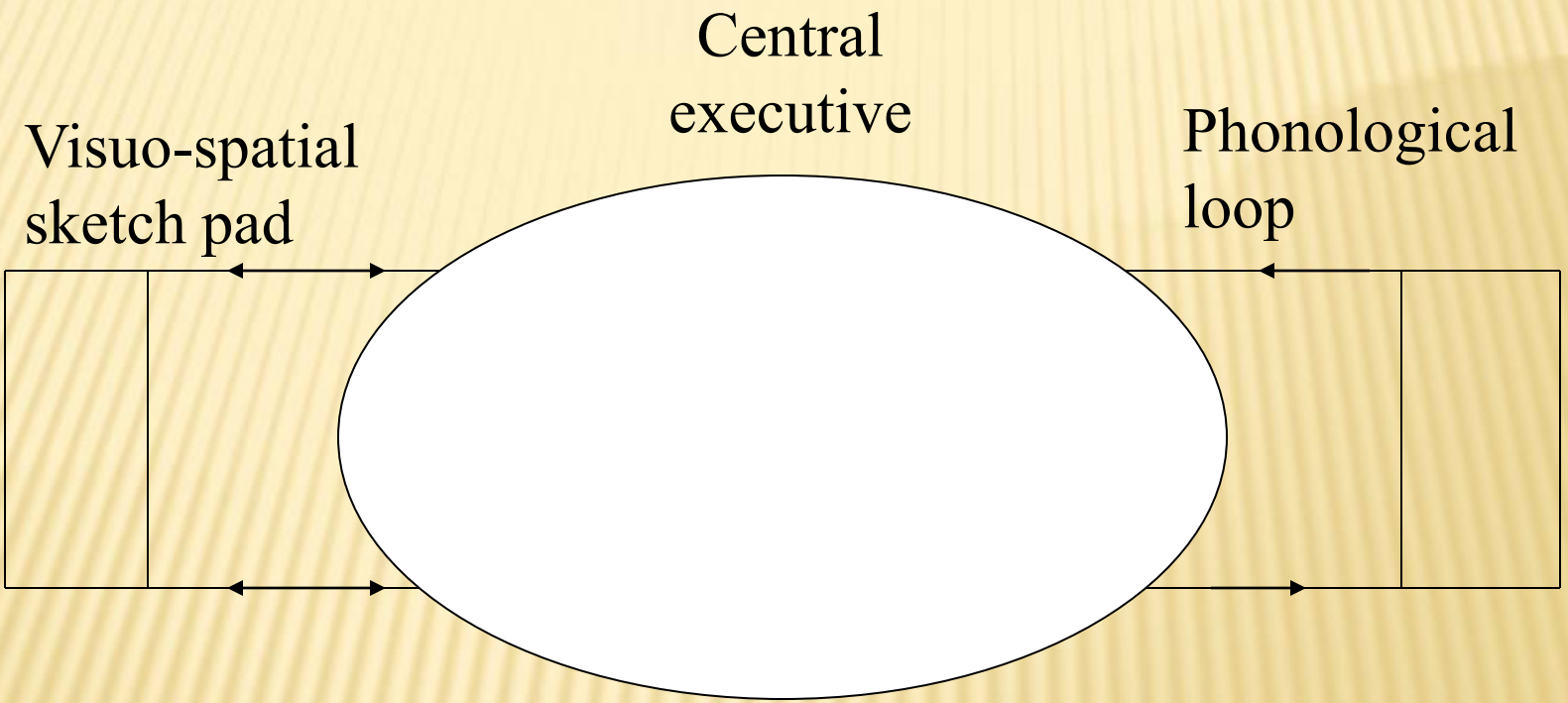
Heterogeneous profiles

Cornoldi, De Beni e Pazzaglia (1996)

	Cases											
Tests	*PL*	*VG*	*FM*	*TL*	*AN*	*NL*	*LD*	*FC*	*MM*	*DM*	*CL*	*CM*
Reading Compr.												
Comp2	••	••	••	••	••	••	••	(•	(•			(•
Inc1		••										
Inc2		••										
Story1	••	••		•		••		••	••		•	••
Story2	•	••	••			••		••	••			
Oral Compr./ Memory												
TV-text1+2		••	••	••	••			••		••		
TV-images1+2				••								
Listening			+					+				
Metac.												
Metac2-cont		•	•	•	•		•	•	(•		•	•
Metac2-strat	•				•		•	•	(•		•	
Metac2-sens		•	•				•		(•	•		
Metac2-goal												
Working Memory												
F.I.T.				+			••			•	•	
Digit test		•				•		•				
Reading test	•	•	•	•	•		•	•	•			
Random gener.		•			•	••	•	•	•	•		
General Skills												
Math	+			+					•		(•	
PMA-VM			•	(•		•	•		•	•		
PMA-R			+	(+	•	••	••		•	•		
Accuracy		+								(+		
Dictation	(•		+			••			(•	•		•

Note. Tests where single poor comprehenders presented a strong (•) or a very strong (••) failure or particular success (+). The indices are preceded by a parenthesis only when they approach the critical values.

THE TRIPARTITE WM MODEL OF BADDELEY


Central
executive
Visuo-spatial
sketch pad
Phonological
loop

WM AND COMPLEX COGNITIVE ABILITI

- Working memory is a powerful predictor of several complex cognitive abilities, such as Reasoning and Comprehension.

- The key aspect refers to the capability to active control (see Engle et al., 1999; Cornoldi & Vecchi, 2000), which allows also to distinguish passive (short-term memory) from active (working memory) tasks.

WM AND READING COMPREHENSION

- Medium to large correlations between WM and reading comprehension performance.
- In their seminal work, Daneman and Carpenter (1980) demonstrated a high correlation between Listening span test and reading comprehension

Daneman & Merikle (1996)

Meta-analysis in good readers

77 studies

	r with Comprehension	
Listening span	.41	95% CI .38-.44
Digit span	.14	95% CI .10-.18
Word span	.28	95% CI .23-.33

- 1a) Can the relationship between reading comprehension and working memory be found also in the case of poor comprehenders compared with typical comprehenders?

- 1b) Is there also in this case a dissociation between active and passive working memory tasks?

- It is possible that other types of deficits are more critical in poor comprehenders
- It is possible that WM is critical, but the frequent linguistic problem of poor comprehenders makes the WM problem more domain specific

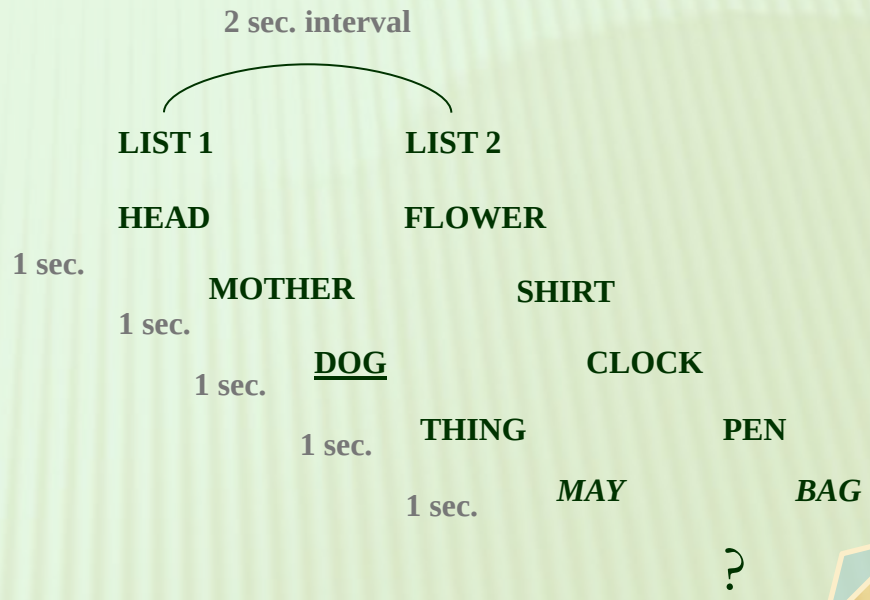
THREE PROBLEMS WITH THE LISTENING SPAN TASK

- 1) The relationship with reading comprehension could be inflated by the fact that also the working memory task requires comprehension
- 2) The presence of intrusions of non-inhibited irrelevant information is reduced by semantic and syntactic cues
- 3)The degree of activation of irrelevant information is not controlled

THE CATEGORIZATION SPAN

EXAMPLE OF THE TASK

Example:



➢**Working memory measures:**

- **total number of words correctly recalled according to the order of presentation (i.e. MAY, BAG);**
- **total number of intrusions (words presented in the task that were not last words)**
- **tapping errors.**

THE CASE OF UPDATING

- Updating implies similar mechanisms: people must maintain in working memory a representation based on some selected information and then inhibit part of it in favour of new incoming more relevant information.
- Furthermore Updating requires that information is continuously changed (as in text comprehension)

THE MODEL

Active updating involves

1) Maintainance
2) Comparison
3) Inhibition

AN EXAMPLE OF TASK: NUMBER UPDATING

- Task request: remember, according to the presentation order, the three smallest numbers

THE NUMBER UPDATING TASK

58
63
59
52
54
57
56
43
60
62

?

52 – 54 - 43

55
28
47
85
64
40
43
94
34
82

?

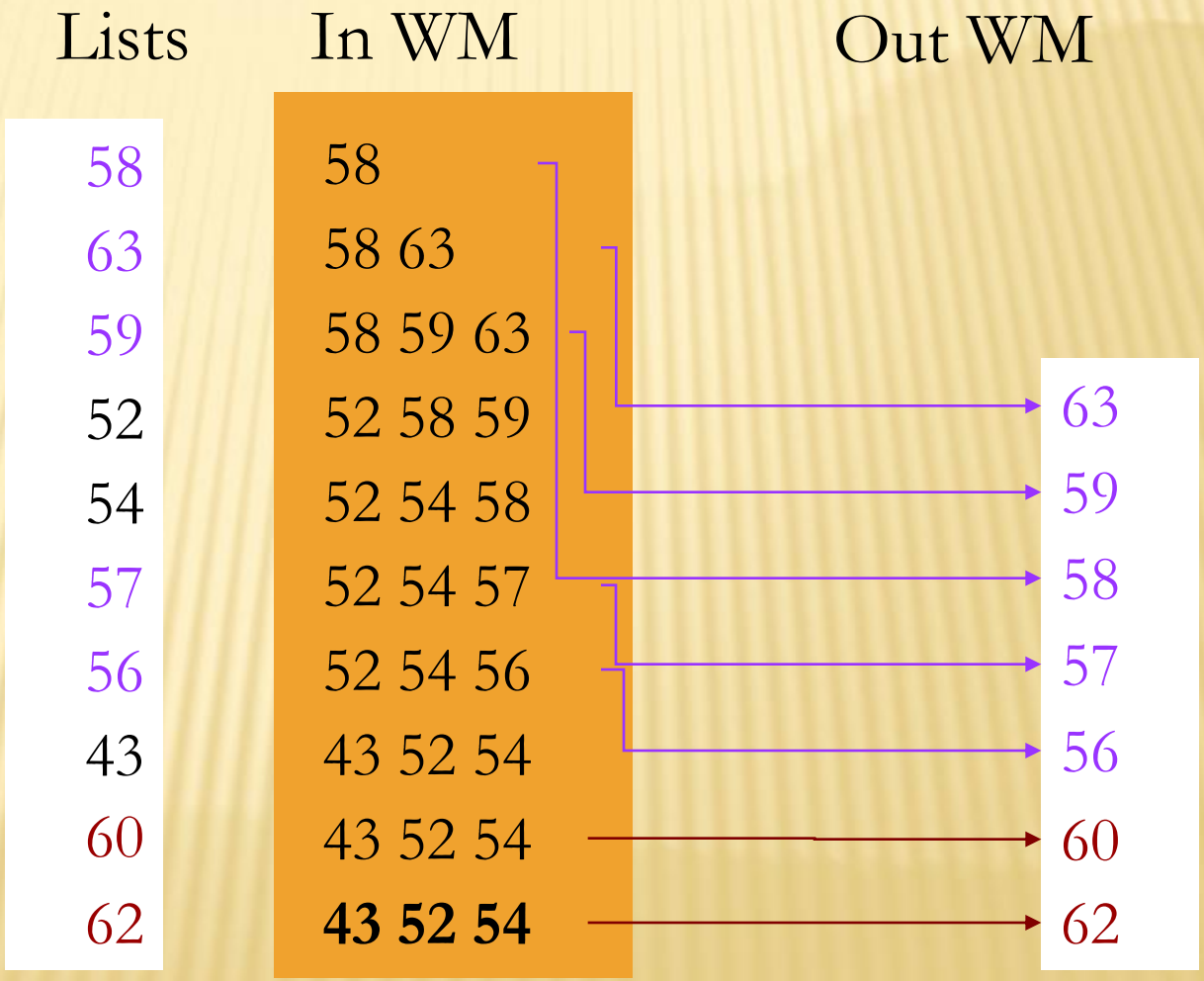
28 – 40 - 34

EXAMPLE

Target: to be recalled items

Successive exclusions: previoue items considered the smallest

Immediate Exclusions: items never considered the smallest

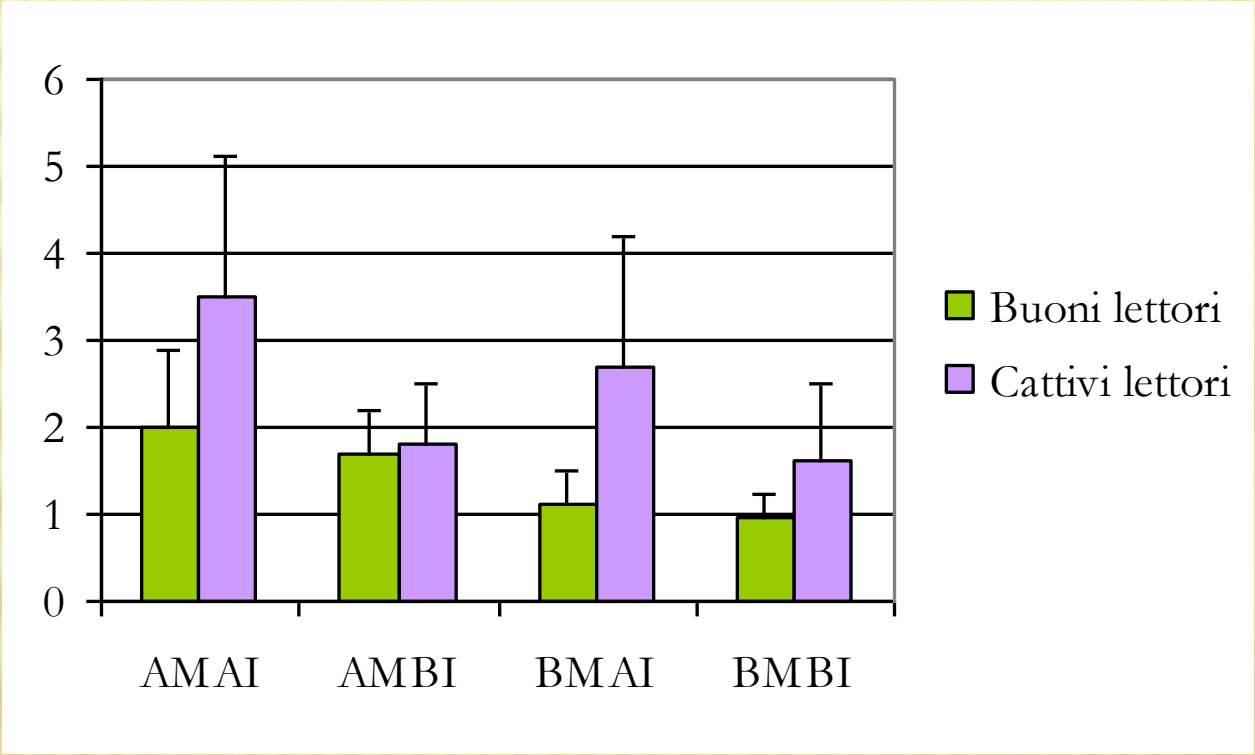


THE CASE OF POOR COMPRENDERS: UPDATING WITH WORDS

- updating is based on a relevance criterion (remembering the smallest objects)
- Difficulty in groups of poor comprehenders mirroring the listening: lower recall, increased number of intrusion errors, particular difficulty with the most activated information (i.e. information which became irrelevant only in a second moment)

EXP.3
PALLADINO ET AL. (2001)

% of intrusions



AMAI = alto mantenimento (5); alta inibizione (5).

AMBI = alto mantenimento (5); bassa inibizione (2).

BMAI = basso mantenimento (3); alta inibizione (2).

BMBI = basso mantenimento (3); bassa inibizione (2).

THE CASE OF POOR COMPRENDERS: UPDATING WITH WORDS

- updating is based on a relevance criterion (remembering the smallest objects)
- Difficulty in groups of poor comprehenders mirroring the listening: lower recall, increased number of intrusion errors, particular difficulty with the most activated information (i.e. information which became irrelevant only in a second moment)

UPDATING WITH PICTURES FOR CHILDREN

- More friendly, codable and with an unequivocal criterion (remembering the names of pictures closest to the bottom).

UPDATING WITH NAMED PICTURES

Albero (Tree)
Onestà (Honesty)
Penna (Pen)
Calzino (Sock)
Vergogna
Automobile
Ruota
Sentimento
Stella
Odio
Ombrello
Elefante
Personaggio
Fungo
Pigrizia

Fucsia (to be remembered).

Green (to be excluded in a second time: intrusioni successive).

Blue (to be excluded immediately: intrusioni immediate).

CRITERION:

3 presented items at the bottom

	Good readers			Poor readers			
	M	DS	95% CI	M	DS	95% CI	
Recall	20.62	1.74	19.29-21.95	15.67	3.76	14.95-16.38	
% Recall	85.93	7.26	83.63-88.24	65.29	15.67	62.99-67.60	≠
Intrusions successive	1.86	1.04	1.66-2.06	5.92	2.78	5.39-6.45	≠
Intrusions immediate	0.10	0.30	0.04-0.15	0.28	0.82	0.13-0.44	
Other errors	0.26	0.46	0.17-0.34	0.35	0.63	0.23-0.47	
Intrusions (previous list)	0.12	0.33	0.057-0.18	0.18	0.44	0.09-0.27	
Omissions	0.88	1.14	0.66-1.09	1.44	1.92	1.08-1.80	

Results

Working memory measures	Number of outcomes	Number of participants: Good comprehenders	Number of participants: Poor comprehenders	*d*	95% CI	*r*	I^2	95% CI
Simple span	11	109	107	.29	.10 - .47	.14	0%	0 - 51
Working memory span	29	695	399	.77	.65 - .88	.36	38%	0 - 60
Verbal								
Visuo-spatial	9	447	182	.36	.19 – .51	.18	0%	0 - 54
Executive functions WM Updating measure	7	235	230	1.07*	.66 – 1.47	.47	71%	14 - 85
Intrusion errors (Inhibition)	10	163	262	-.91*	-1.27 – -.55	-.41	70%	30 - 82
Verbal working memory	8	87	83	.89	.64 – 1.15	.41	17%	0 - 63
Young adults								
Children	16	548	283	.77	.62 - .91	.36	47%	0 - 69

*Due to the high value of hetereogenety index, the *d* value was computed with a random effect analysis (see DerSimonian & Laird, 1986). In all the other cases a fixed effect model was used (see Hedges & Olkin, 1985).

INTERVENTIONS ON READING COMPREHENSION

READING COMPREHENSION TRAINING PROGRAMS THAT ARE KNOWN IN ITALY (CARRETTI, 2010)

Riferimento	Tipo di training	Risultati
Palincsar & Brown (1984)	Reciprocal teaching vs normale attività didattica	La condizione di RT è più efficace nel migliorare la comprensione del testo
Yuill & Oakhill (1988)	Fare inferenze e generare domande vs velocità di lettura vs esercizi standard sulla comprensione	Il miglioramento è tendenzialmente maggiore nel training sulle inferenze rispetto agli esercizi standard e migliore di quello sulla decodfica
Yuill & Joscelyne (1988)	Individuare informazioni chiave nella storia per fare inferenze	I cattivi lettori che seguono il training migliorano la prestazione
Oakhill & Patel (1991)	Training utilizzando le immagini mentali	I cattivi lettori migliorano dal pre al post test

TRAINING CON STUDENTI CON DCT

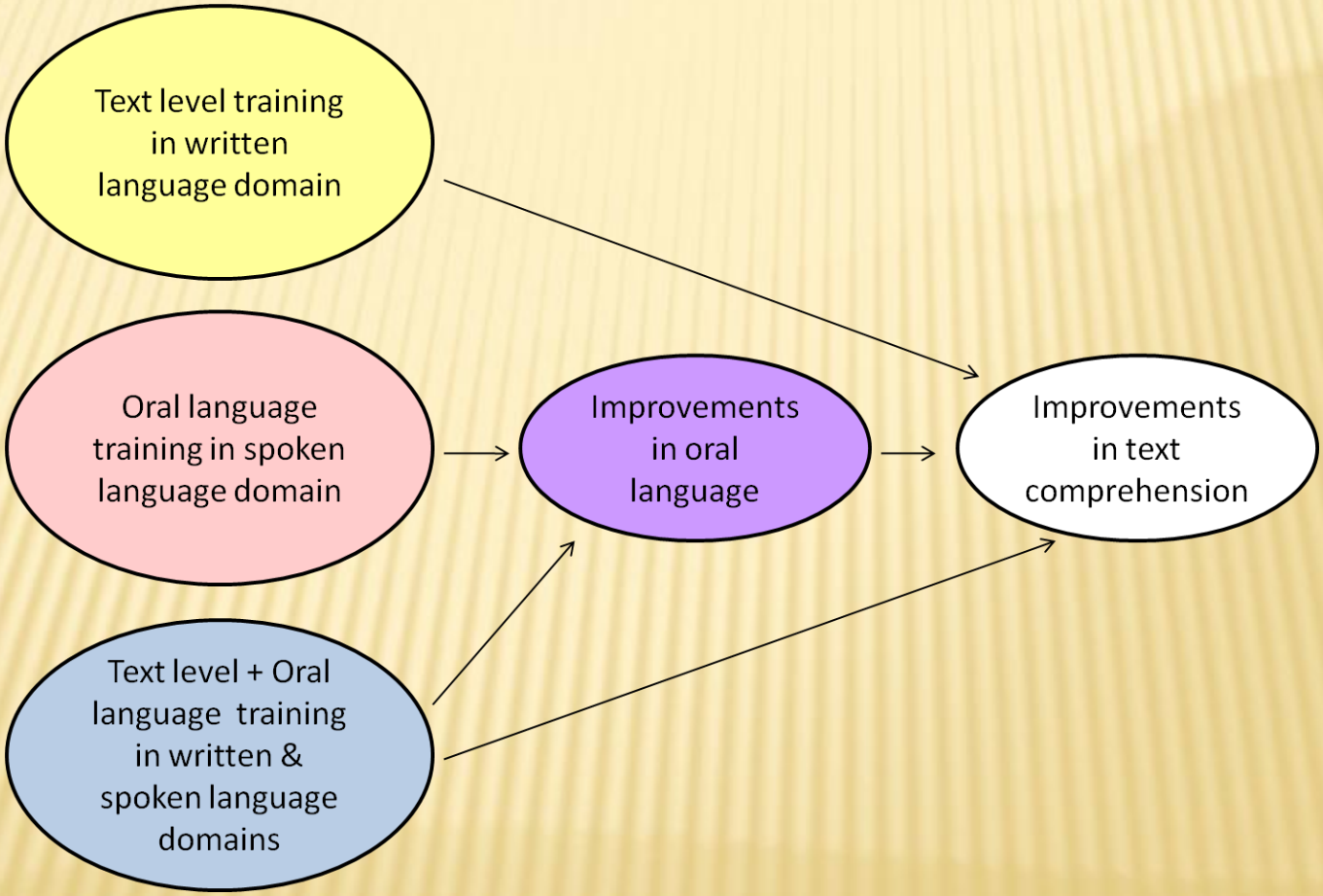
Riferimento	Tipo di training	Risultati
McGee & Johnson (2003)	Inferenze (vedi lavori Yuill e collaboratori)	Miglioramento per i cattivi lettori.
Johnson-Glenberg (2000) Johnson-Glenberg (2005)	RT materiale verbale vs. Training di visualizzazione Web-based training con strategie verbali vs visualizzazione	In entrambe le condizioni sperimentali si evidenzia un miglioramento nella comprensione, ma anche in altre misure ad essa collegate
Clarke, Snowling, Truelove & Hulme (2010)	RT comprensione del testo, ascolto vs combinato	Il training sull'ascolto sortisce i risultati migliori

ORAL LANGUAGE STUDY BY *PAULA J. CLARKE, MARGARET J. SNOWLING, EMMA TRUELOVE, E CHARLES HULME*

Ameliorating Children's Reading-Comprehension Difficulties: A Randomized Controlled Trial

Children with specific reading-comprehension difficulties are able to read aloud correctly but have a hard time understanding what they just read. Children exhibiting reading-comprehension difficulties were assigned to either no intervention (control) orprograms one of three intervention for overcoming these problems: an oral language program (emphasizing vocabulary and only involving spoken language), a text comprehension program (involving metacognitive strategies and working with written texts), or a combined program using elements from both. While all three interventions produced improvements in children's reading comprehension, long-term gains were largest using the oral language program.

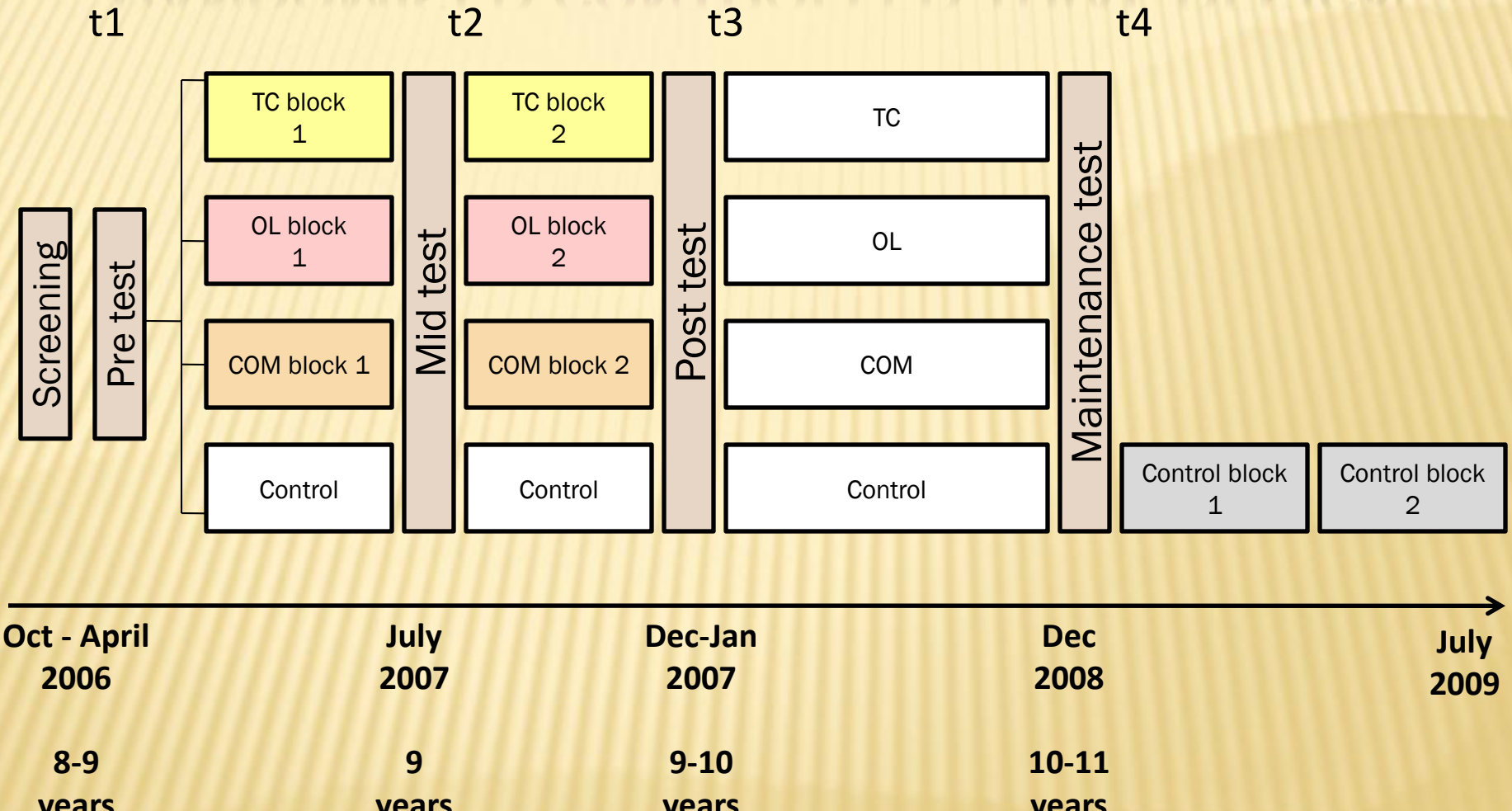
CLARKE, HULME, TRUELOVE & SNOWLING (2010)



PROTOCOL FOR 'README'

- Poor comprehenders selected by screening around 1000 children in 20 classes (20 different schools)
- In each class the 8 children with the weakest reading comprehension skills (in the presence of adequate decoding) were selected
- Selected children allocated randomly to 4 groups: OL, TC, OL+TC, Waiting list
- Teaching alternates between individual and dyadic teaching session for 20 weeks

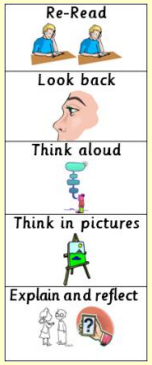
RANDOMISED CONTROLLED TRIAL DESIGN

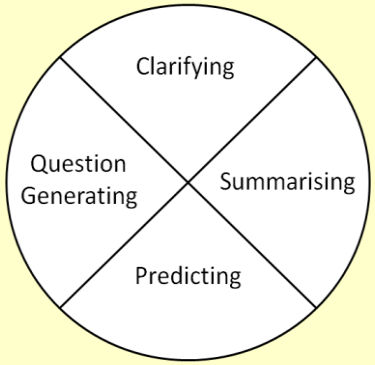


PROGRAMME CONTENTS AND FEATURES

Text Comprehension

Written Language Context

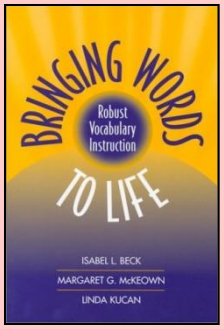


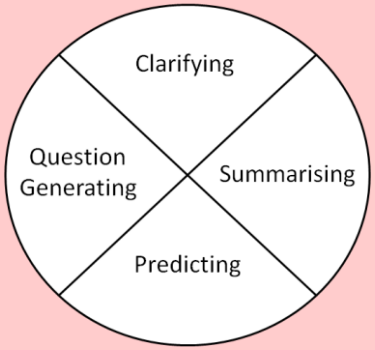


Reading Comprehension
Metacognitive Strategies
Inferencing from Text
Narrative - written

Oral Language

Spoken Language Context



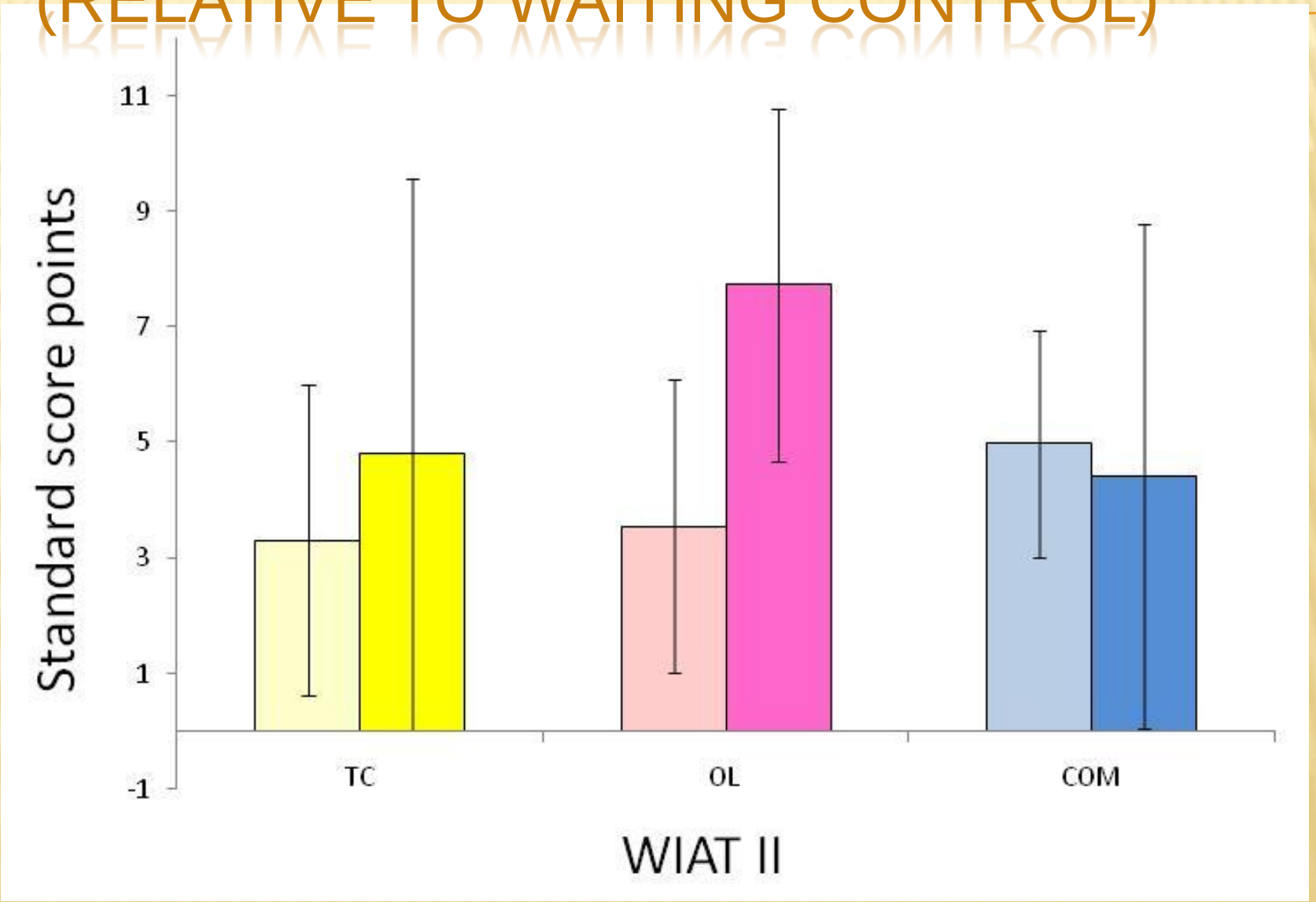


Listening Comprehension
Vocabulary
Figurative Language
Narrative - spoken

Combined

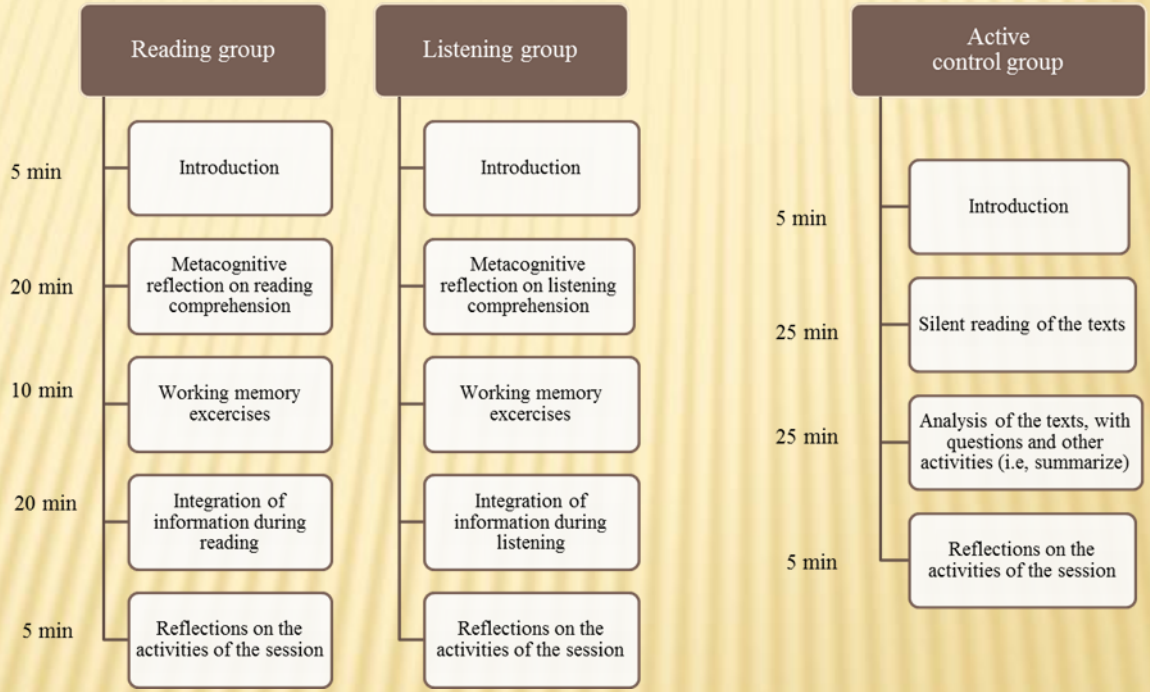
- All eight components
- Sessions contained both reading and listening comprehension
- Opportunities for children to encounter new vocabulary/idioms/inferences in both written and spoken language.

GAINS IN TEXT COMPREHENSION (RELATIVE TO WAITING CONTROL)



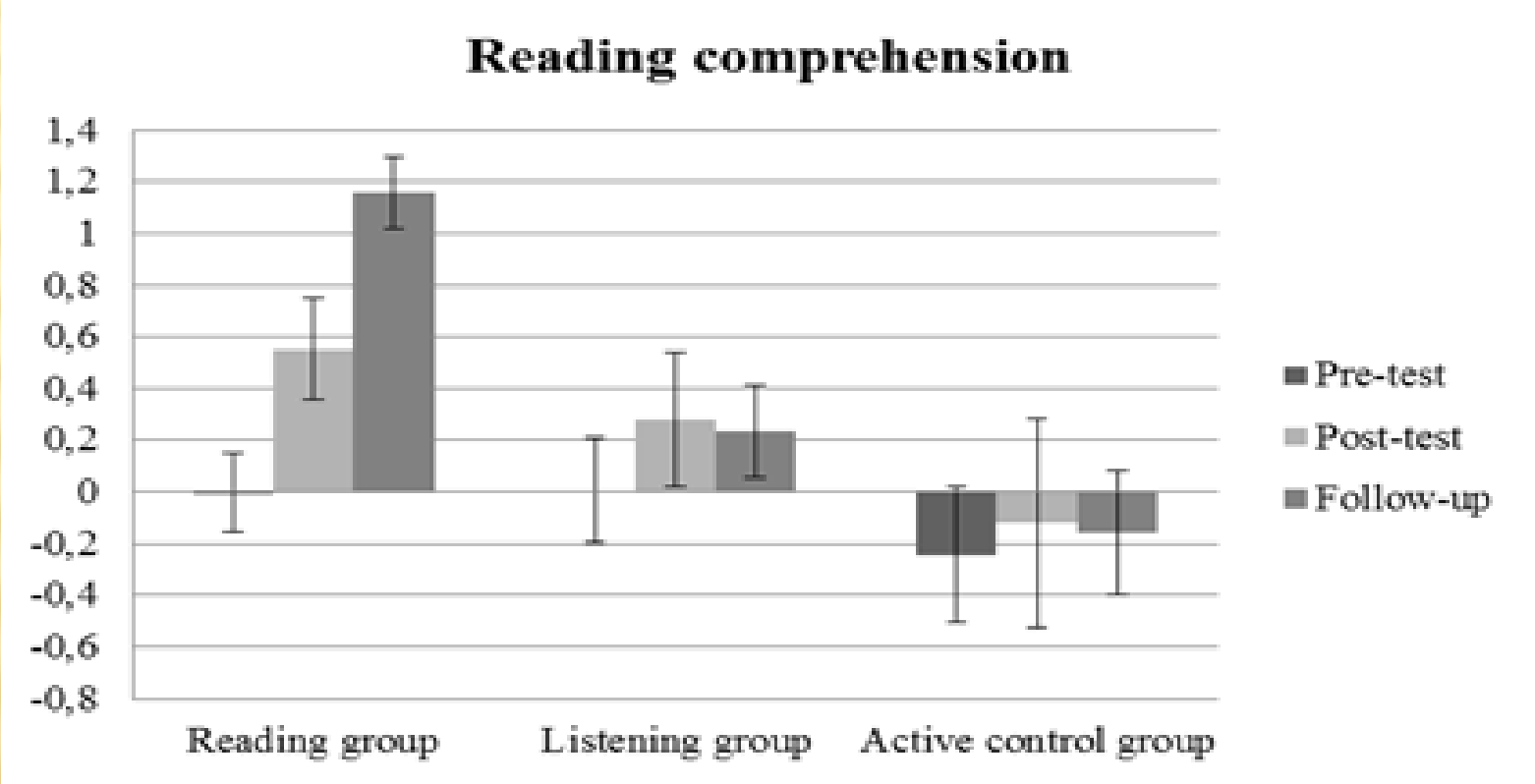
Clarke, Hulme, Truelove & Snowling

PROJECT OF INTERVENTION AT SCHOOL (CARRETTI ET AL., 2014)



BARBARA CARRETTI, NADIA CALDAROLA, CHIARA TENCATI, AND CESARE CORNOLDI. IMPROVING READING COMPREHENSION IN READING AND LISTENING SETTINGS: THE EFFECT OF TWO TRAINING PROGRAMS FOCUSING ON METACOGNITION AND WORKING MEMORY, BRITISH JOURNAL OF EDUCATIONAL PSYCHOLOGY, 2014

		Metacognition		**WM updating**		Integration skills	
		Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Reading group	M	8.61	11.64	9.44	11.07	8.88	9.88
	SD	3.36	3.36	2.05	2.12	2.93	2.81
Listening group	M	8.14	11.02	9.60	9.96	8.08	9.72
	SD	4.10	2.798	2.00	2.65	3.14	2.81
Active control group	M	7.90	9.11	10.49	10.33	7.55	8.82
	SD	2.73	3.01	2.82	2.84	2.49	2.69


Reading comprehension
1,4
1,2
1
0,8
0,6
0,4
0,2
0
-0,2
-0,4
-0,6
-0,8
Reading group
Listening group
Active control group
Pre-test
Post-test
Follow-up