



# Persistence and consequences of language and speech difficulties in preschool children

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**welcome**trust

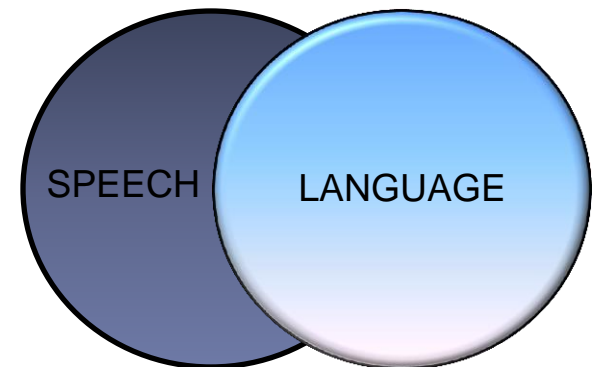
THE UNIVERSITY *of York*

Centre for Reading and Language

# Speech & Language difficulties



- Speech AND/OR Language
  - LI and SSD often – but don't always – co-occur (Pennington & Bishop, 2009)
  - Different – but overlapping- aetiologies
    - High heritability for SSD
    - Strong environmental influence on isolated language impairments (Bishop & Hayiou-Thomas, 2008)
  - Different response to treatment (Law et al., 2000)
  - Consequences for literacy
    - Isolated SSD carries little risk
    - Co-morbid LI+SSD carries high-risk



# The Study



- How do isolated speech and language difficulties compare to a combined deficit?
  - Preschool profile: T1, age 3½
  - Persistence: T1 – T3
  - Profile at school entry: T3, age 5

# The Study



- How do isolated speech and language difficulties compare to a combined deficit?
  - Preschool profile: T1, age 3½
  - Persistence: T1 – T3
  - Profile at school entry: T3, age 5
- *Focus on LI and SSD regardless of Family Risk for dyslexia*
- *Focus on status at T1*

# Defining subgroups at T1 – Age 3½



- Language Impairment (LI)
  - Below cut-off on 2/4 language tests
  - CELF-P2 basic concepts, expressive vocabulary, sentence structure (scaled score  $\leq 8$ ), TEGI screener
- SSD
  - DEAP articulation percent Consonants Correct
  - Below 74%

# Question 1

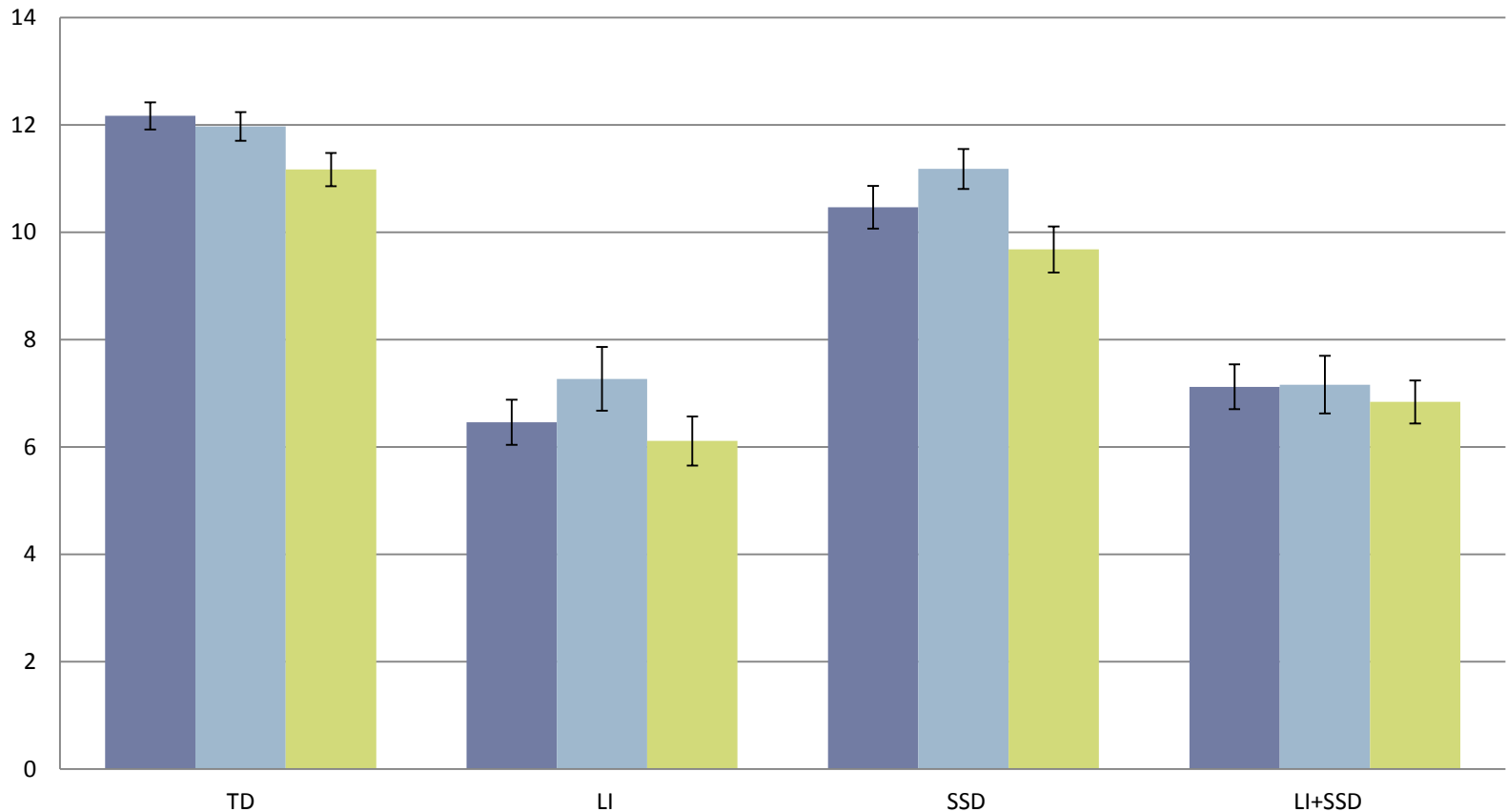


- Does the initial severity of speech or language impairments differ for single (LI-only or SSD-only) vs double-deficit (LI+ SSD) groups?

# Age 3½: Profiles of LI & SSD groups

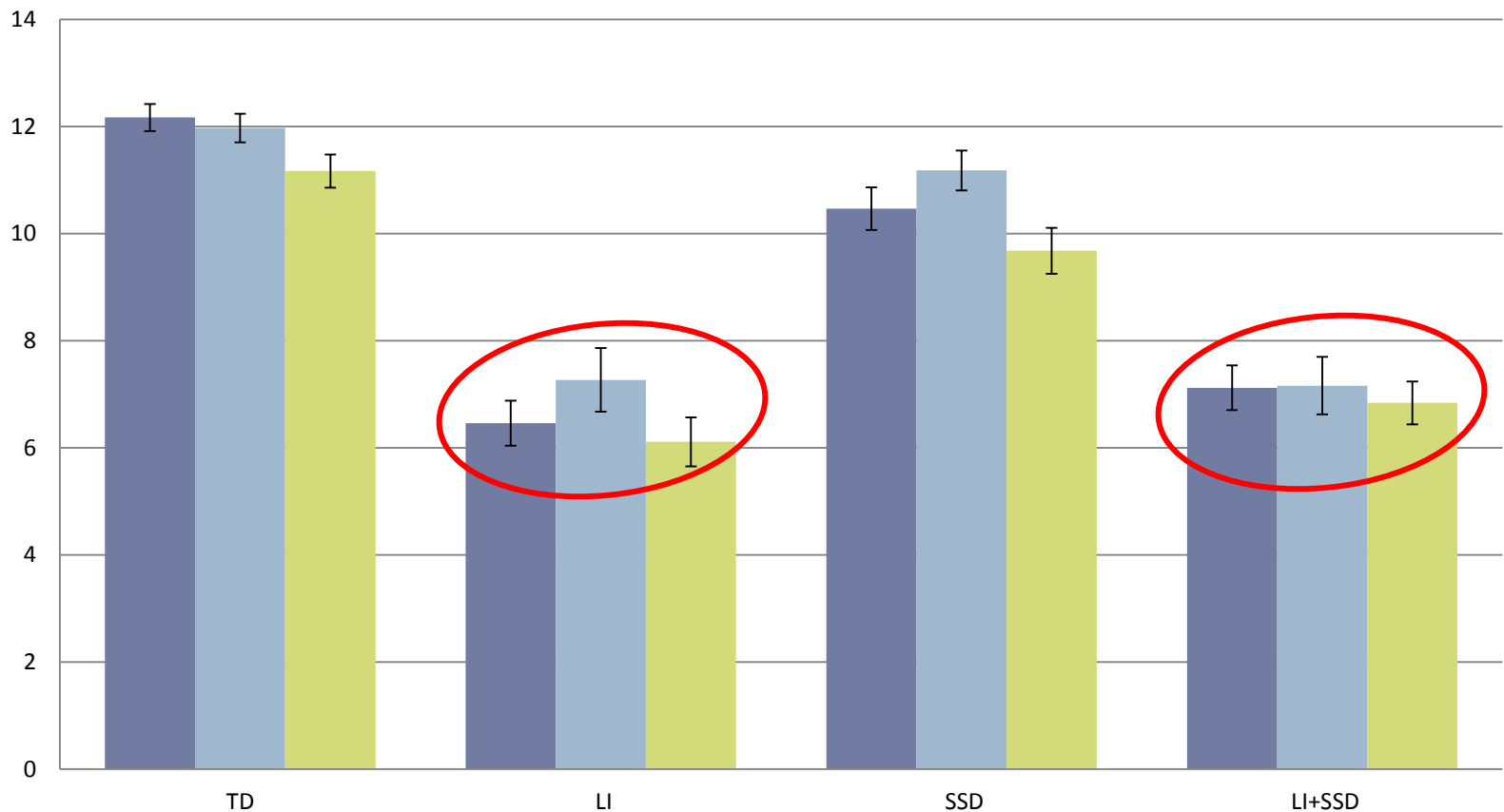


Language measures used to define groups (CELF)



# Age 3½: Profiles of LI & SSD groups

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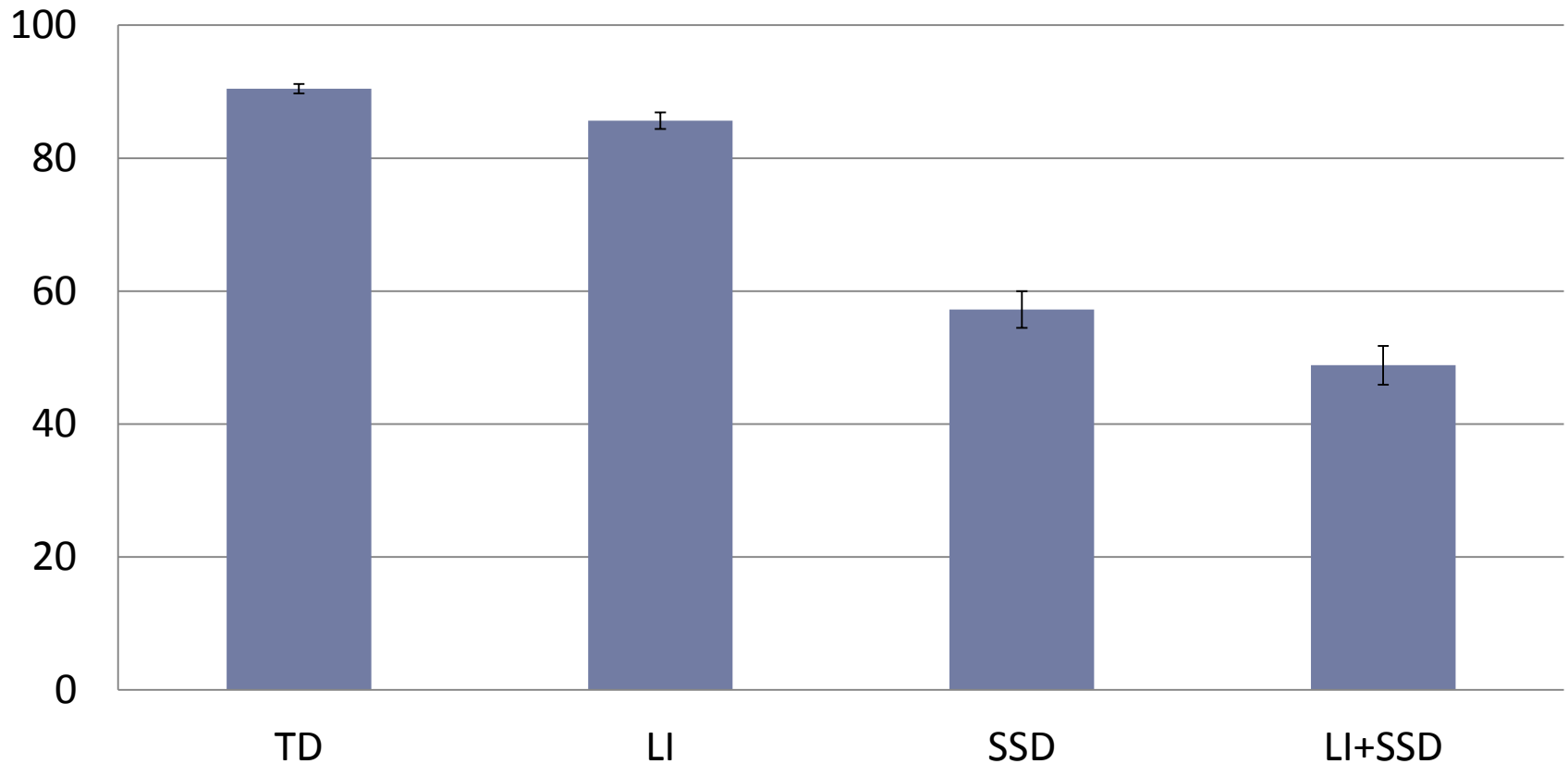
TD > SSD > LI = LI+SSD



# Age 3½: Profiles of LI & SSD groups



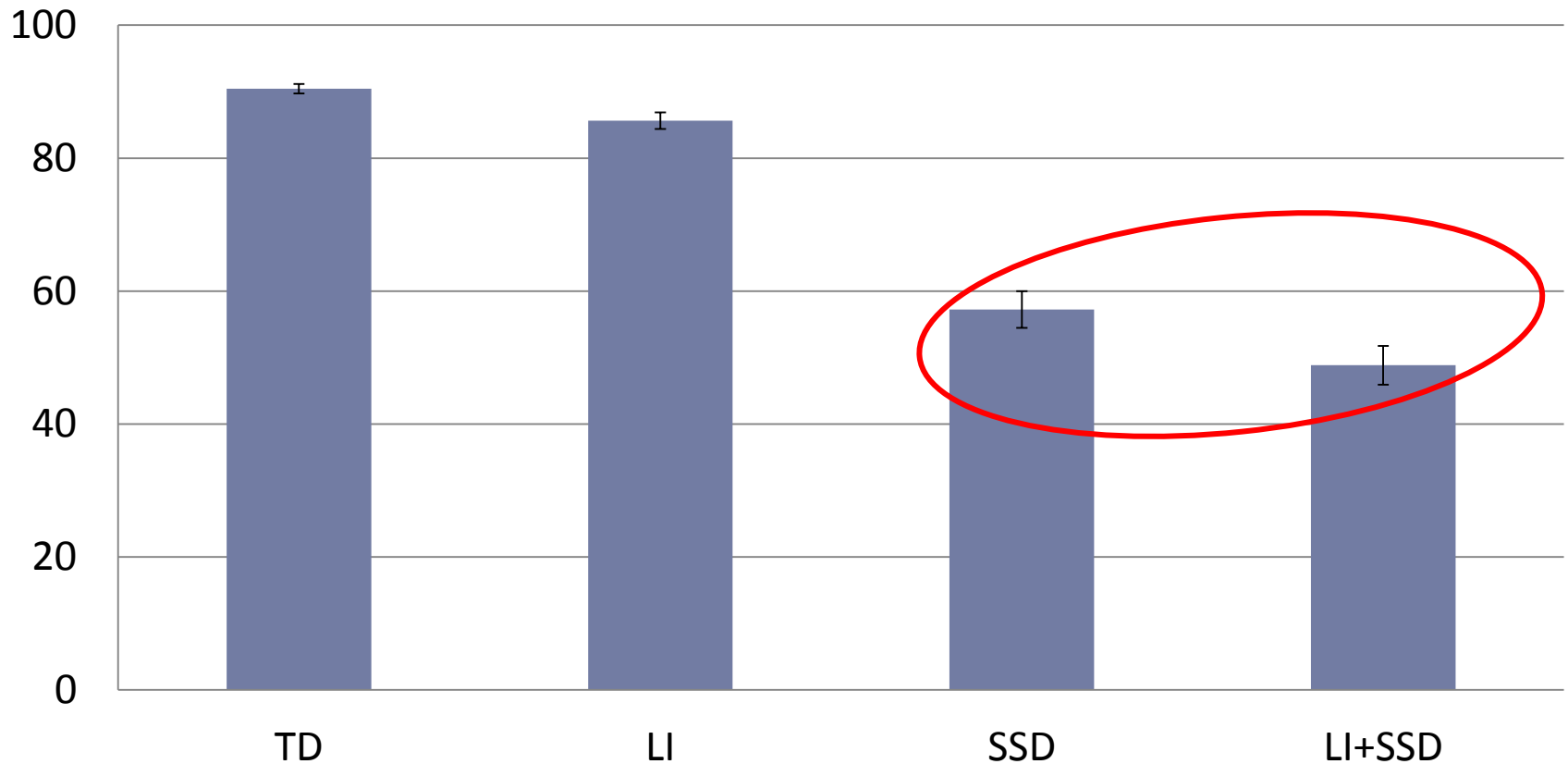
Speech measure used to define groups (DEAP - % consonants correct)



# Age 3½: Profiles of LI & SSD groups



Speech measure used to define groups (DEAP - % consonants correct)



TD = LI >> SSD > LI+SSD

# Question 1



- Does the initial severity of speech or language impairments differ for single (LI-only or SSD-only) vs double-deficit (LI+ SSD) groups?
  - No difference for LI
  - Very small (but significant) difference for SSD

# Question 2



- Which is more persistent between the ages of 3 ½ and 5: SSD, language impairment, or the combination of the two?

# Defining subgroups at T3 – Age 5



- Language Impairment (LI)
  - Below cut-off on 2/3 language tests
  - CELF-P2 expressive vocabulary, sentence structure (scaled score  $\leq 8$ ), TEGI screener
- SSD
  - Below 95% consonants correct (DEAP)
    - *Only administered to children identified with SSD at T1*

# Persistence



	T1	T3	LI	SSD	LI+ SSD
	TD	TD			
TD	71				
LI	27				
SSD	28				
LI+SSD	37				

# Persistence



	T1	T3	LI	SSD	LI+ SSD
		TD			
TD	71	71 100%		-	-
LI	27	16 59%	11 41%	-	-
SSD	28				
LI+SSD	37				

# Persistence



	T1	T3	LI	SSD	LI+ SSD
		TD			
TD	71	71 100%		-	-
LI	27	16 59%	11 41%	-	-
SSD	28	7 25%	0 0%	19 68%	2 7%
LI+SSD	37				



# Persistence



	T1	T3	LI	SSD	LI+ SSD
		TD			
TD	71	71 100%	-	-	-
LI	27	16 59%	11 41%	-	-
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LI+SSD	37	4 11%	4 11%	12 32%	17 46%

# Persistence



	T1	T3	LI	SSD	LI+ SSD	
		TD				
TD	71	71 100%		-	-	
LI	27	16 59%	11 41%	-	-	
SSD	28	7 25%	0 0%	19 68%	2 7%	75%
LI+SSD	37	4 11%	4 11%	12 32%	17 46%	89%

# Question 2



- Which is more persistent between the ages of 3 ½ and 5: SSD, language impairment, or the combination of the two?
  - Combination of LI+SSD is most persistent
  - SSD more persistent than LI

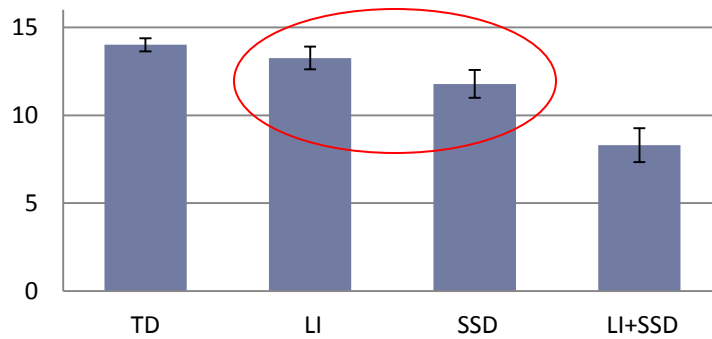
# Question 3



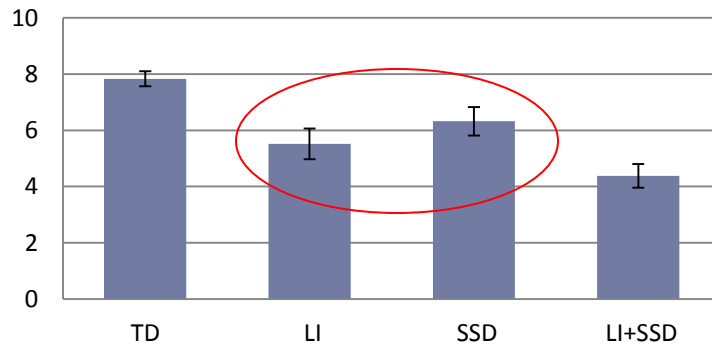
- What is the outcome at age 5, in terms of early literacy skills, for those children identified at 3 ½ as having isolated vs combined speech and language impairments?

# Age 5: Phonological skills

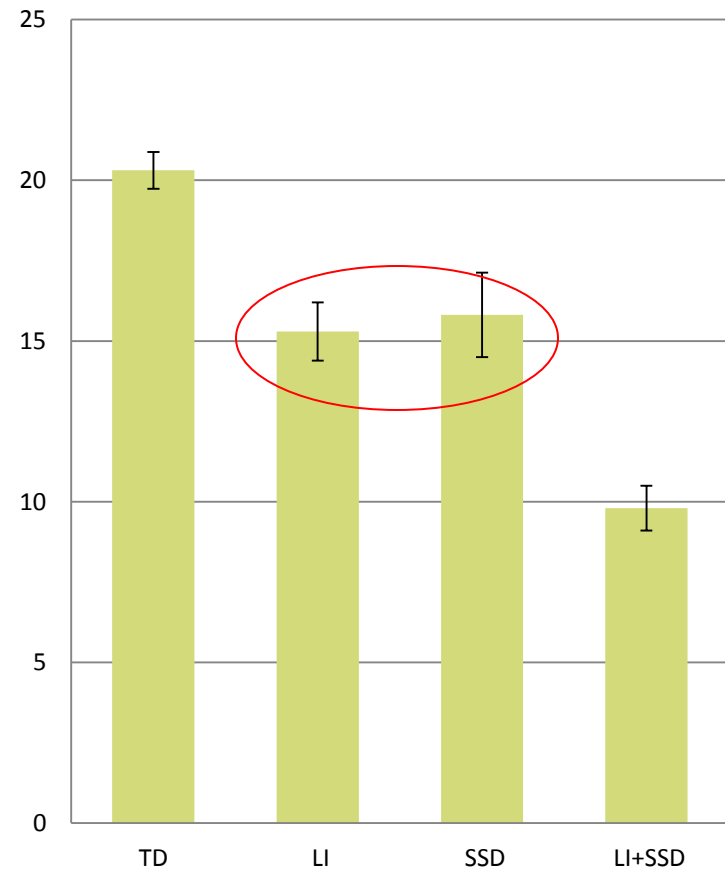
### Phoneme Isolation



### Phoneme Deletion



### Nonword Repetition

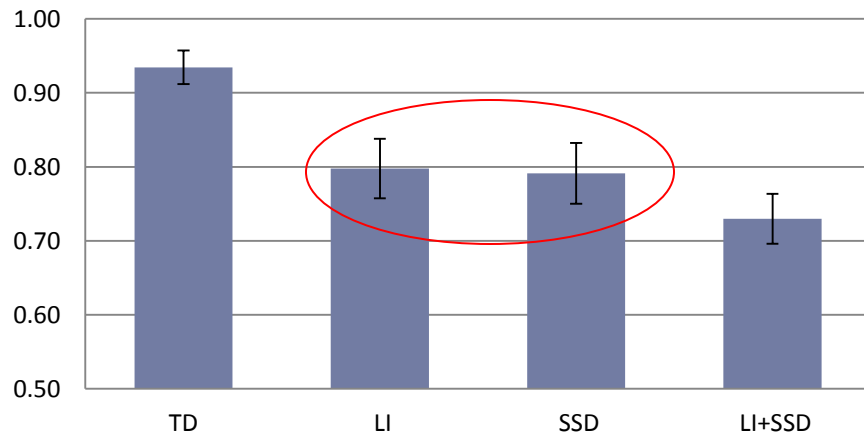


TD > SSD = LI > LI+SSD\*

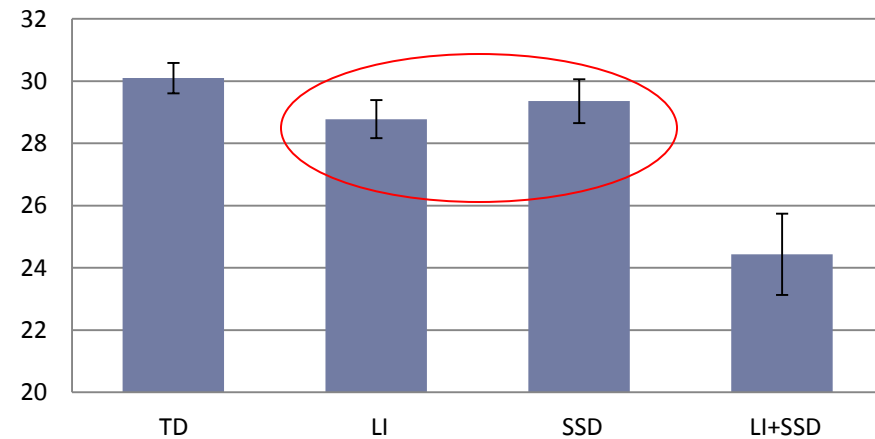
# Age 5: Pre-literacy skills



### RAN Objects (rate)



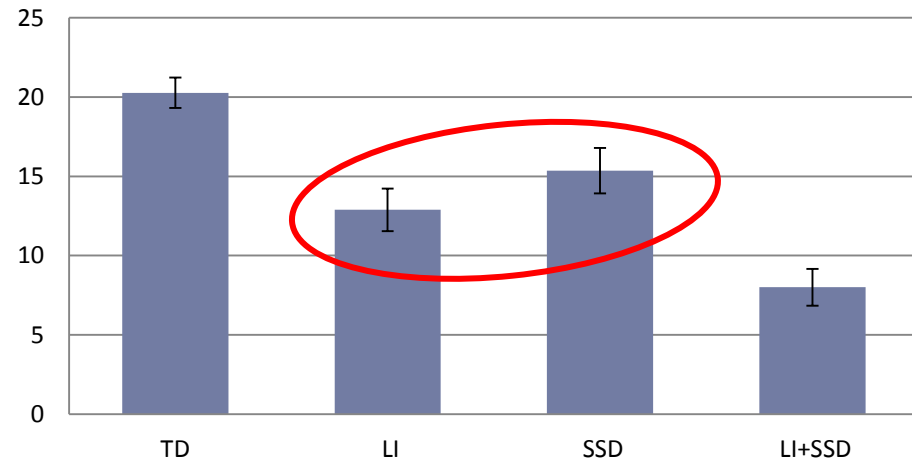
### Letter-Sound Knowledge



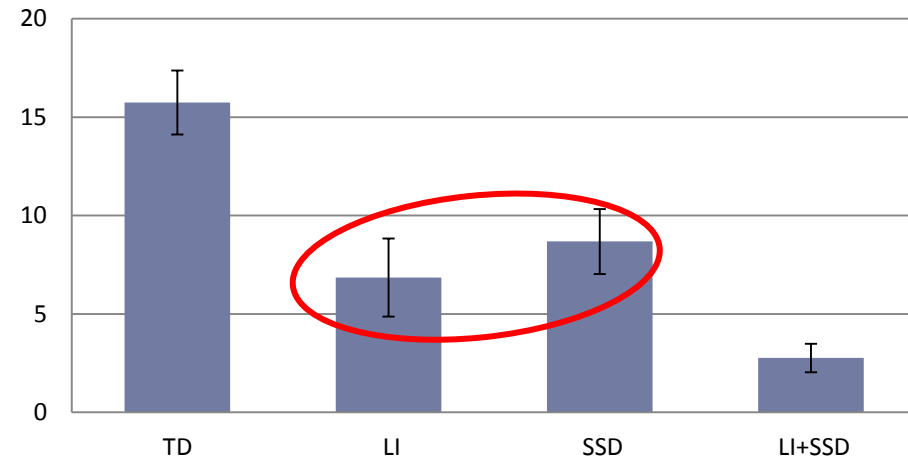
TD > SSD = LI > LI+SSD\*

# Age 5: Early reading skills

### Early Word Reading



### Sight Word Reading



TD > SSD = LI > LI+SSD\*

# Question 3



- What is the outcome at age 5, in terms of early literacy skills, for those children identified at 3½ as having isolated vs combined speech and language impairments?
  - Mild deficits for isolated difficulties
  - Severe deficits for combined speech & language impairments



# Conclusions



- Profile at age 3
  - LI+SSD: LI in terms of language, SSD in terms of speech
  - No evidence of more generalised or severe difficulties

# Conclusions



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  - No evidence of more generalised or severe difficulties
- Persistence
  - Speech impairments appear to be more persistent than isolated language impairments in the preschool years
  - Combined deficit LI+SSD most persistent

# Conclusions



- Profile at age 3
  - LI+SSD: LI in terms of language, SSD in terms of speech
  - No evidence of more severe difficulties
- Persistence
  - Speech impairments appear to be more persistent than isolated language impairments in the preschool years
  - Combined deficit LI+SSD most persistent
- Profile at age 5
  - Stepwise pattern across early literacy measures: consistently worse outcome for combined deficit compared to either single-deficit group

# Conclusions



- Profile at age 3
  - LI+SSD: LI in terms of language, SSD in terms of speech
  - No evidence of more severe difficulties
- Persistence
  - Speech impairments appear to be more persistent than isolated language impairments in the preschool years
  - Combined deficit LI+SSD most persistent
- Profile at age 5
  - Stepwise pattern across language, speech, and literacy measures: consistently worse outcome for combined deficit compared to either single-deficit group
- **Speech and Language difficulties: separable and additive risk factors.**

# Future Directions



- Persistence
- Family-risk status
- Speech, language, decoding and reading comprehension outcomes at age 9.

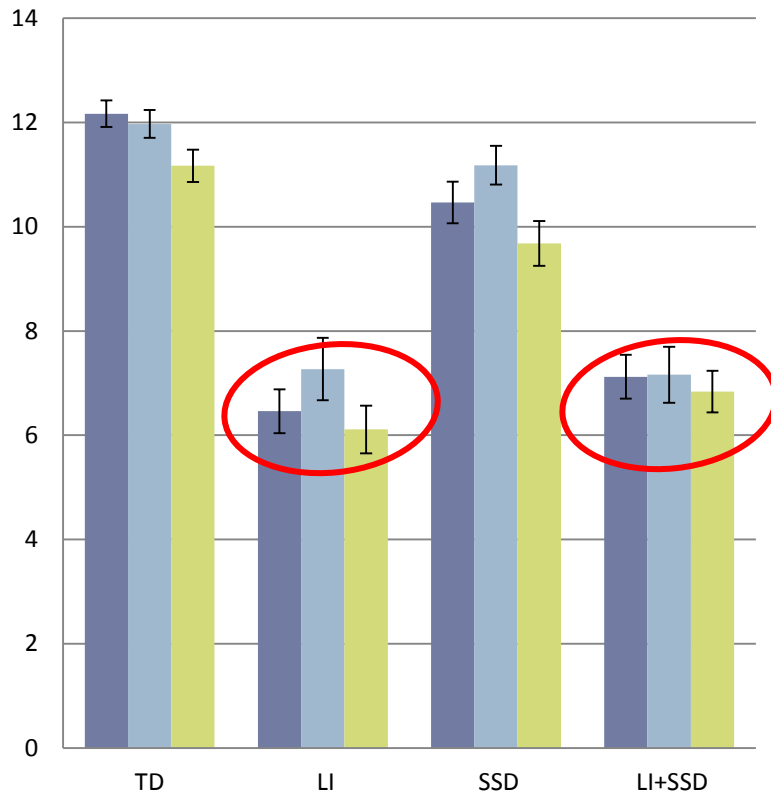
# Thanks for listening!



# Preschool Profiles of LI & SSD groups

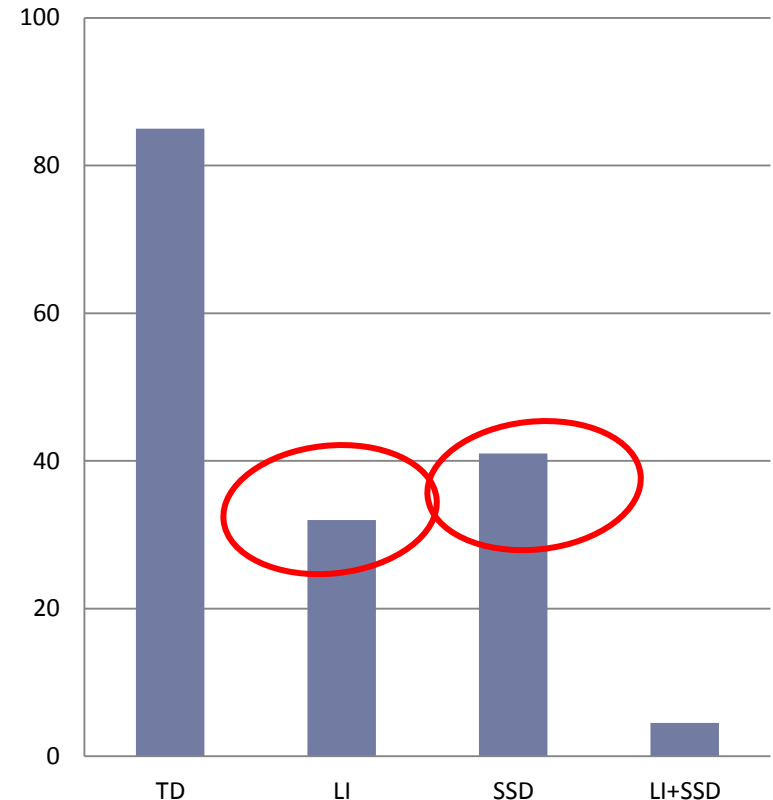


### Language measures used to define groups (CELF)



TD > SSD > LI = LI+SSD

### Language measures used to define groups (TEGI: % pass)

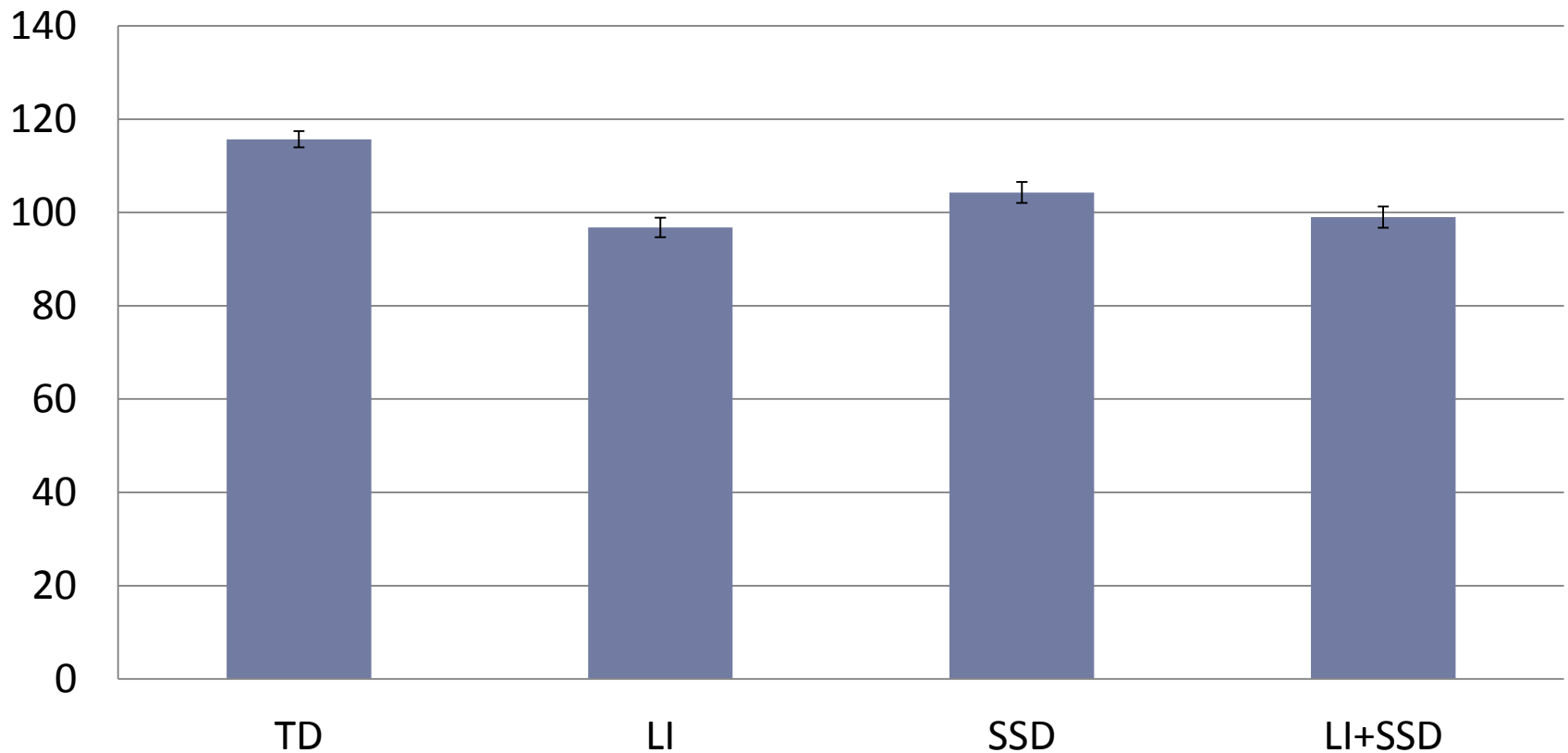


TD > SSD = LI > LI+SSD

# Preschool Profiles of LI & SSD groups



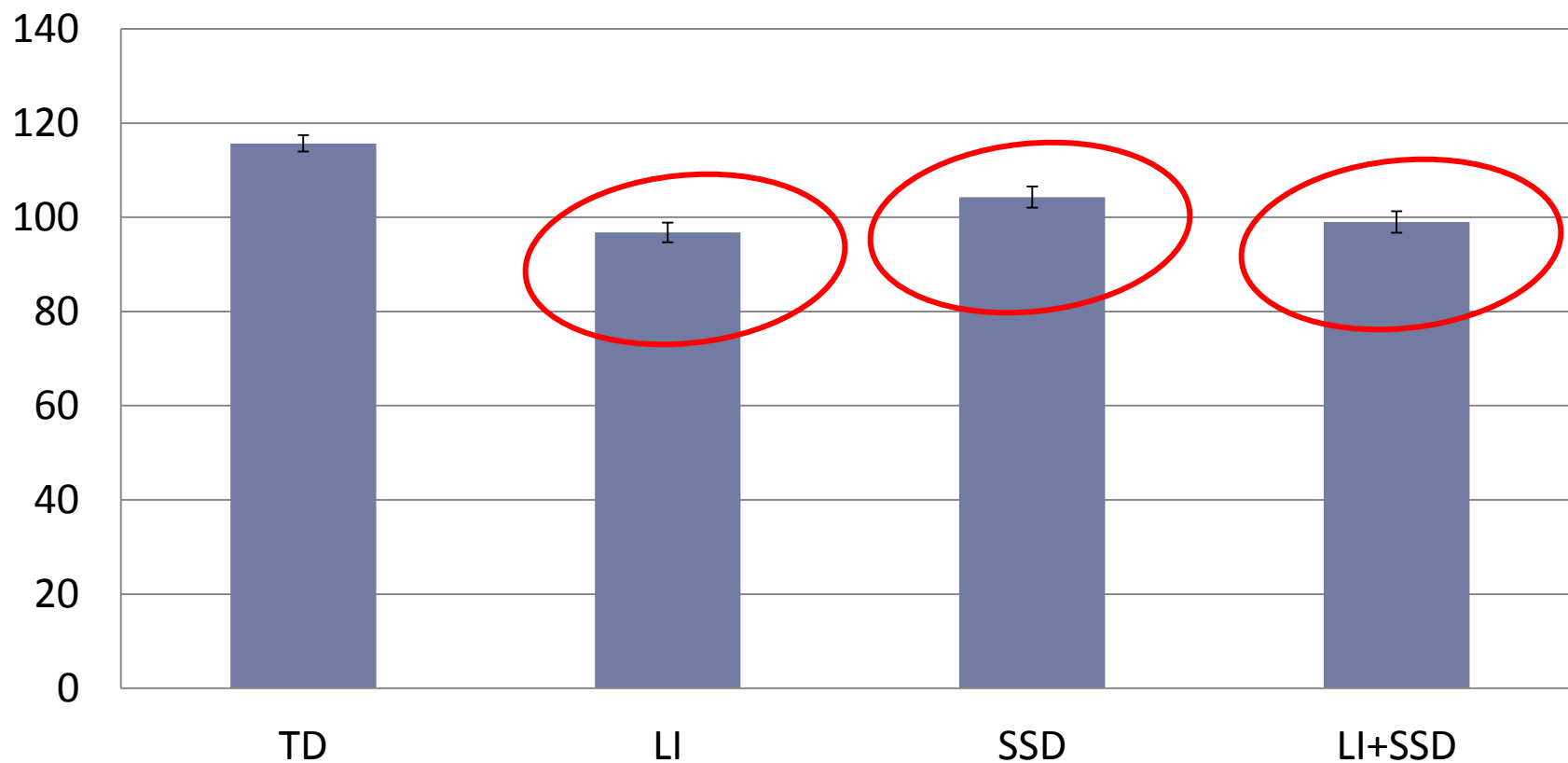
## Performance IQ





# Preschool Profiles of LI & SSD groups

## Performance IQ

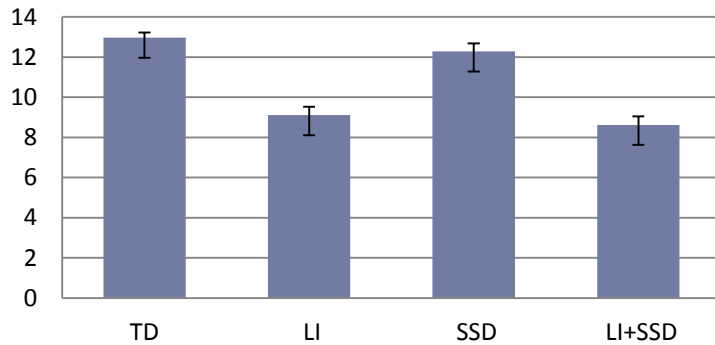


TD = LI = SSD = LI+SSD

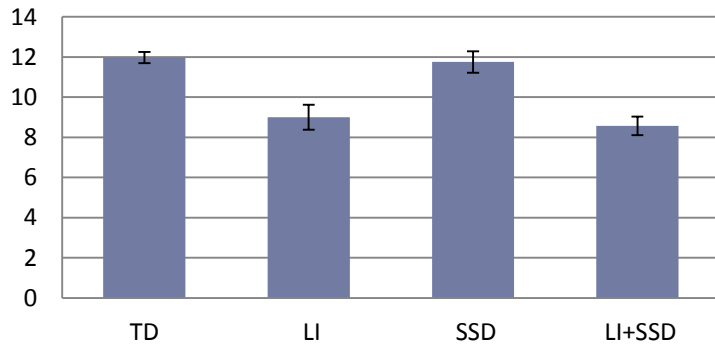
# Profile at age 5: Speech & Language



### CELF Expressive Vocabulary: T3



### CELF Sentence Structure: T3



### DEAP pcc: T3

