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Venezia

Investigating the use of voice synthesis in the language testing of students with SpLDs

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1. Specific Learning Difficulties (SpLDs)
2. Italian context
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Dyslexia and Specific Learning Difficulties (SpLDs)

Difficulties in

- accurate and fluent wording
- reading and spelling
- mapping phonemes to graphemes
- slow or inaccurate word-recognition



Dyslexia and Specific Learning Difficulties (SpLDs)

Related linguistic difficulties:

- dysgraphia (calligraphy)
- dysorthographia (spelling words)
- dysnomia (remembering words)

Common cognitive difficulties:

- dyscalculia (mathematics)
- dyspraxia (organisation of movement)
- short-term memory deficit
- attention deficit disorder (ADD) often associated with hyperactivity (ADHD).



Italian context

Italian

shallow orthography

4-5% population dyslexic

English

deep orthography

10% population dyslexic

English L2 for Italian dyslexics is problematic



Italian context

Compensatory measures established for use by students with SpLDs in classroom and assessment contexts:

- tables or mind maps
- recorders instead of note-taking
- word processors with spelling and grammar checks
- calculators
- text to speech technology (voice synthesis)



University context

- Higher numbers of students with SpLDs enrolling in universities
- Need to provide fair access to high-stakes language tests (English: B1 entry; B2 exit)
- Need to offer compensatory measures, including voice synthesis
- Validity of language tests: construct under-representation (Messick, 1989)?



Case Study: Research question 1

How do Italian dyslexic students interact with a reading text using voice synthesis?

To what extent do they orient (Wagner, 2007) to the reading text on the monitor while listening to voice synthesis?



Case Study: Research question 2

Is the Italian dyslexic student's use of VS affected by the following variables?

- the language of the text (L1 or L2)
- the type of text (text, m/c or text + m/c)



Case Study: Methods

Reading texts: L1 (Italian) and L2 (English – CEFR B1)

Voice Synthesis: Alpha Reader, speed 7, female voice, BE

Recording eye movement

Observation

Stimulated verbal recall/interview



Case Study: Participants

	Student 1	Student 2	Student 3
Age	22	24	22
Diagnosis	Dyslexia, mild dysgraphia and dysorthography	Dyslexia and dysgraphia	Dyslexia and dyscalculia
University degree course	Architecture	History	Letters
Use Voice Synthesis	No use at school, only since university	No use at school, only since university	Since 3 rd year secondary school
Level English proficiency	A1.2 certified, moving towards B1	B1 certified	B1 certified

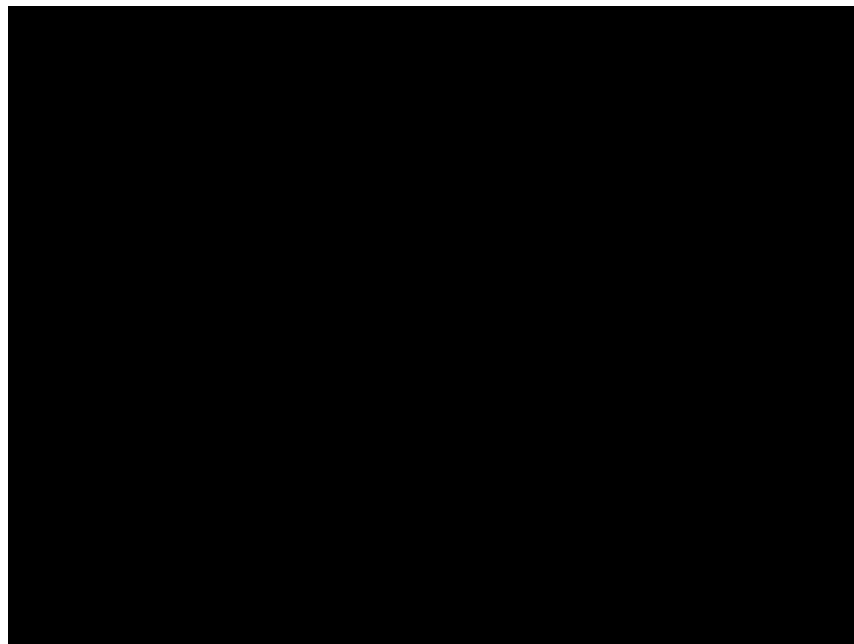


Case Study: Reading texts

	Italian	English
Text only	255 words	120 words (B1)
		270 words (B1)
Multiple choice only	<ul style="list-style-type: none">• short• decontextualised• factual	<ul style="list-style-type: none">• short• decontextualised• factual
Text and Multiple choice	120 words Multiple choice <ul style="list-style-type: none">• short• comprehension	71 words Multiple choice <ul style="list-style-type: none">• long• comprehension
		79 words Multiple choice <ul style="list-style-type: none">• long• comprehension



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Use of VS: Italian

	Student 1	Student 2	Student 3
Text only	√	no	√
Multiple choice only	no	no	no
Text + m/c	Text: √ m/c: no	no	Text: √ m/c: no



Use of VS: English

	Student 1	Student 2	Student 3
Text only	√	√	√
Text only	√	√	√
Multiple choice only	some	no	no
Text + m/c	Text: √ m/c: no	Text: √ m/c: no	Text: √ m/c: √
Text + m/c	Text: √ m/c: no	Text: √ m/c: no	Text: √ m/c: √



Stimulated verbal recall/interview

Student 1: I only use VS for longer texts with words I don't know.

(m/c) It is faster to read than to use VS.

I remember better if I read a text.

I listen and read first with VS, then I read.

Student 2: I don't use VS for Italian.

In English I use VS to get a general idea of a text and to get an idea of unknown words.

First I listen and read, then I read again.

Student 3: I often don't use VS for Italian as it is faster.

Listening for pleasure (audio books/VS)

Reading for study purposes



Research question 1

How do Italian dyslexic students interact with a reading text using voice synthesis?

To what extent do they orient (Wagner, 2007) to the reading text on the monitor while listening to voice synthesis?

- All 3 students read as they listen using VS
- All 3 students read after using VS



Research question 2

Is the Italian dyslexic student's use of VS affected by the following variables?

- language of the text (L1 or L2)
 - More use of VS with L2 texts
- text type
 - VS used with reading texts
 - VS generally not used with m/c



Future research

Guidelines for good practice in language testing in Italian universities

- Continue investigation into use of VS by Italian university students with SpLDs
- Explore use of multiple choice by Italian university students with SpLDs



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Thank you

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