VOCABULARY SIZE, WORKING MEMORY AND ATTENTION IN EARLY VOCABULARY LEARNING UNDER DIFFERENT TV GENRES

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MULTIMODAL INPUT BENEFITS

Integrating video materials as a common practice (Mayer, 2014; Paivio, 1990)

Simultaneous exposure to soundtrack in the FL and captions beneficial for language learning: comprehension (Rodgers & Webb, 2017) & vocabulary acquisition (e.g. Gesa, 2019; Montero, Van Den Noortgate, & Desmet, 2013)

Onscreen text compensates for limited vocabulary size while stimulating vocabulary learning (Danan, 1992; Montero et al., 2013; Sydorenko, 2010)

These benefits may depend on several factors:

- language of soundtrack/text (L1 subtitles, L2 captions, or reversed)
- the target language (Winke, Gass & Sydorenko, 2013)
- the viewers' proficiency in the L2 (Suárez & Gesa, 2019, Muñoz, 2017)
- the viewers' age (Muñoz, 2017; Vanderplank, 2010)

HOW ABOUT TV GENRES?

- Genres modulate the viewer's experience (Plantinga, 2019)

- Features such as amount and pace of action, length and type of shots, linguístic features... provide distinct characteristics of the input to be processed (suggested in Gilabert et al., submitted)

MULTIMODAL INPUT

+

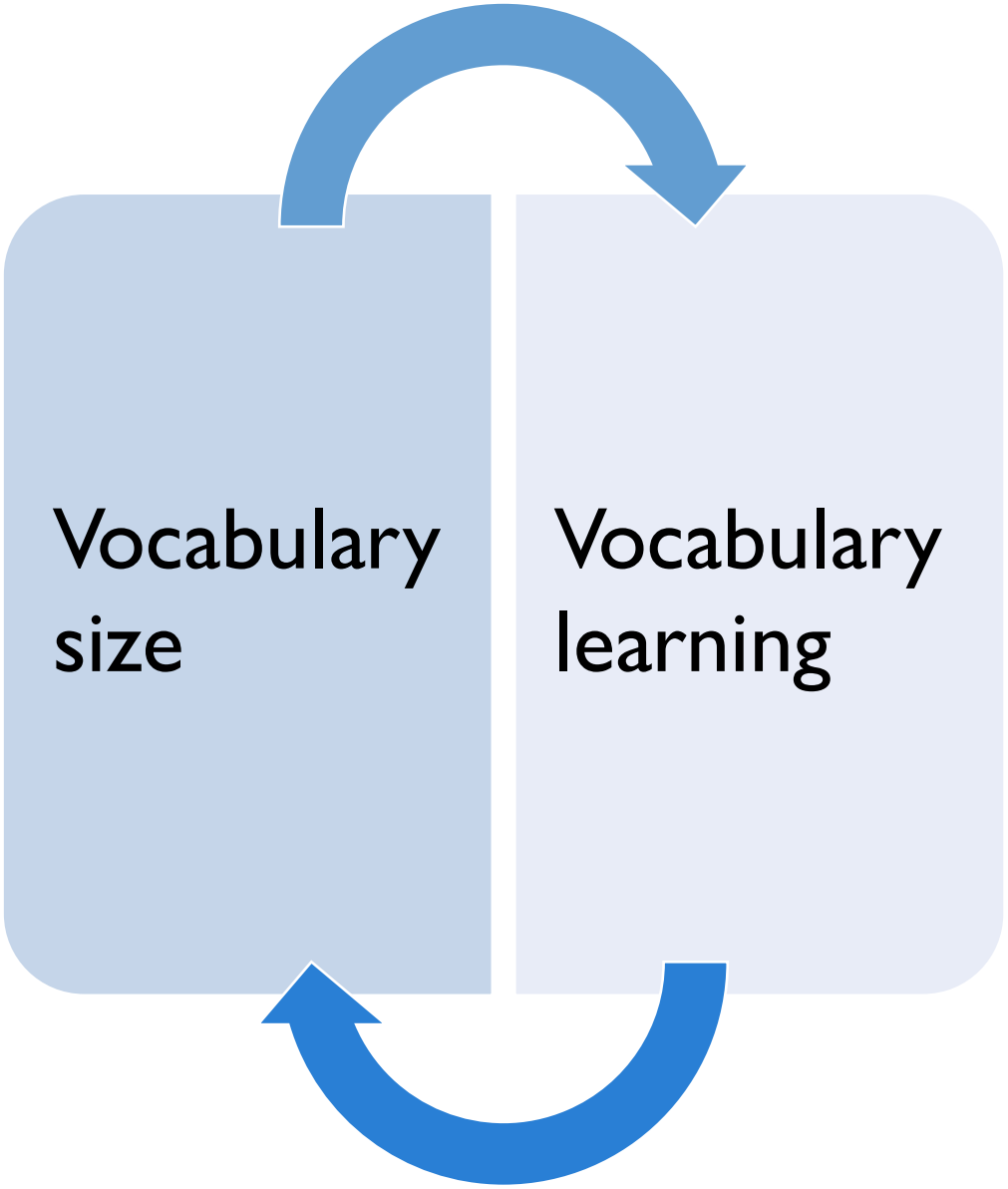
Vocabulary size (& proficiency)

Working Memory (WM)

Attention

VOCABULARY SIZE + MULTIMODAL INPUT

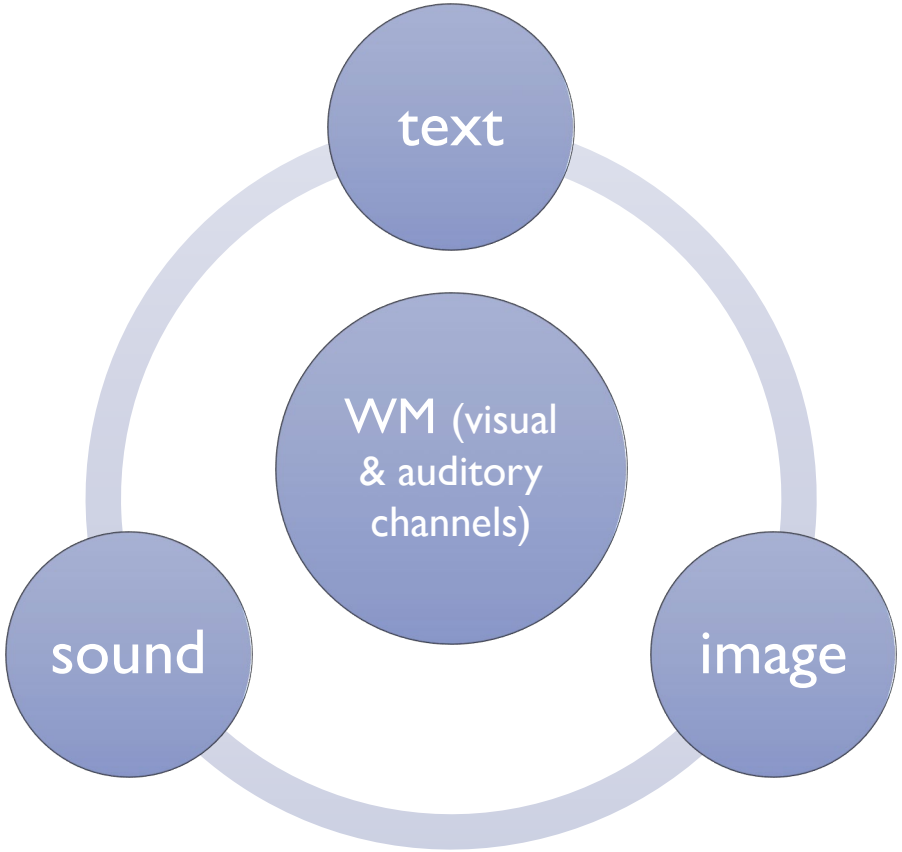
- Inconclusive results regarding vocabulary learning through multimodal input exposure.
- L2 programs with subtitles → "incidental" vocabulary learning (Koolstra & Beentjes, 1999).
- Higher proficiency with higher vocabulary gains in multimodal environments in a wide range of populations: pre-schoolers (Alexiou, 2015) , high-schoolers (Kvitnes, 2013) and adults. (Peters & Webb, 2018)
- Correlations between vocabulary size and gains both in form recognition (Peters & Webb, 2018) and meaning recognition (Peters et al. 2016, Peters & Webb, 2018).



MATTHEW EFFECT

(Stanovich, 1986)

WORKING MEMORY +MULTIMODAL INPUT



- People with greater WM capacity → better at comprehending language, following directions or multitasking (Engle, 2010; Gathercole, 2006)
- Watching captioned video as a complex task

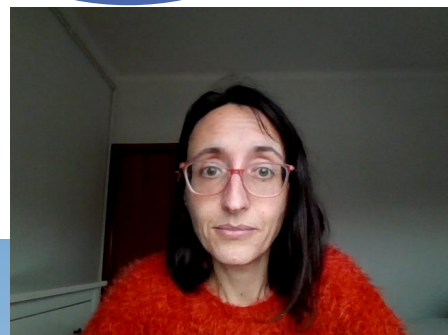
ATTENTION + MULTIMODAL INPUT

Faster attention switching

+

More efficient attention switching

→ Focus on the most relevant input aspects → Processing promoted → SLA



WHY THIS STUDY?

- Within-subject repeated measures design
- 4 clips of different genres: comedy, documentary, edutainment and police procedural
- Vocabulary size and cognitive abilities (WM and attention)
- Unknown words → one exposure (initial learning stages)

METHODOLOGY

PARTICIPANTS

- 41 bilingual Catalan-Spanish EFL learners
- A2-B1 CEFRL
- Heterogeneous group:
  - Age range: 18-70
  - WM range: 3-61
  - Reaction times for the attention switching task: 22.92-543.87ms

GENRES & VIDEO MATERIALS

Fiction	Comedy
	Police procedural
Non-fiction	Edutainment
	Documentary

TARGET ITEMS

Genre / Word category	Nouns	Adjectives	Verbs	Multi-word units	Total TWs
Documentary	3	3	3	1	10
Edutainment	4	2	3	1	10
Police procedural	2	4	2	2	10
Comedy	1	2	5	2	10

LANGUAGE TESTS

- 40 TWs (10 words per genre): form and meaning recognition

Form recognition	10 TWs + 10 distractors	Yes/No	Post-viewing clips
Meaning recognition	10 TWs + 5 distractors	Multiple choice 5 options	Pre- & post-viewing clips

- Vocabulary_YesNo v1.0 test → mean 5023.85 word families.
- Proxy for proficiency (Meara & Miralpeix, 2015)
- A2-B1 levels confirmed

YesNo v1.0	**N**	**Min**	**Max**	**Mean**	**SD**
Vocabulary size	41	3200	6724	5023.85	819.700

COGNITIVE TESTS

- WM: reading span task
- Attention: Faces attention switching task (Mora, 2017)

Tests	N	Min	Max	Mean	SD
WM	41	3	61	24.30	16.256
Attention-switching	39	22.92	543.87	273.2851	120.93348

DESIGN

Independent variables: genre

Mediating variables: vocabulary size, proficiency, WM, attention switching, inhibition

Dependent variables: meaning recognition, form recognition

PRE-TEST

Target Word knowledge test
40 targets + distractors

VOCABULARY SIZE
YES_NO 1.0 test

COGNITIVE TESTS

Reading Span

Letter Span

Attention Switching

Inhibition task

Animal documentary	Multiple choice **comprehension** questions **Meaning recognition, form recognition**
Infotainment TED talk	Multiple choice **comprehension** questions **Meaning recognition, form recognition**
Comedy	Multiple choice **comprehension** questions **Meaning recognition, form recognition**
Procedural drama	Multiple choice **comprehension** questions **Meaning recognition, form recognition**

RETROSPECTIVE PROTOCOL ANALYSIS

About:
-Rating of difficulty and motivation

- Preference for genres
- Learning experience

RESULTS

FORM RECOGNITION

	N	Min	Max	Mean	SD
Recog. documentary	41	4.00	10.00	**6.6250**	1.70501
Recog. edutainment	41	.00	9.00	3.9250	2.35761
Recog. police procedural	41	.00	10.00	4.4500	2.65011
Recog. comedy	41	2.00	9.00	5.9756	1.91687

Documentary > Comedy > Police Procedural > Edutainment

MEANING RECOGNITION

	N	Min	Max	Mean	SD
Gains documentary	41	1.00	6.50	**3.5000**	1.30863
Gains edutainment	41	.00	5.50	**2.7195**	1.52089
Gains police procedural	41	.00	7.00	**3.4756**	1.63153
Gains comedy	41	.00	5.50	2.5854	1.28405
Ratio documentary	41	.00	80.00	**24.9361**	22.35712
Ratio edutainment	41	.00	60.00	14.6816	18.21515
Ratio police procedural	41	.00	100.00	20.2284	22.44966
Ratio comedy	41	.00	71.43	18.9654	18.88559

Gains: **Documentary > Police Procedural >** Comedy > **Edutainment**

Ratio: Documentary > Police Procedural > Comedy > **Edutainment**

WORDS OR GENRES?

REGRESSION ANALYSIS: THE MEDIATING ROLE OF WM, ATTENTION-SWITCHING, AND VOCABULARY SIZE

	Documentary	Comedy	Police Procedural	Edutainment
Form recognition	Vocabulary size 19.3%	Vocabulary size 23.8%	Vocabulary size 14.1%	Vocabulary size 26.3%
Meaning recognition: Gains	-	WM Vocabulary size 15.2%	WM Vocabulary size 17.3%	Vocabulary size 10.6%
Meaning recognition: Ratio	-	-	-	-

DISCUSSION

WM

Attention

Vocabulary size

Except for the documentary!

DISCUSSION: ATTENTION

01

Video viewing: a complex – yet familiar– activity. C

02

Other cognitive aspects: a different measure of attention

03

L2 processing and perception → Advanced learning stages

DISCUSSION: WORKING MEMORY

- Explicit conditions (Linck & Weiss, 2011)
- No strong connection between WM and learning outcomes (Malone, 2018, Martin & Ellis, 2012)
- Participants' WM enough to accommodate the differences in processing imposed by genres.

CONCLUSIONS

Multimodal input → diferent amounts of vocab learning at the initial stages of learning depending on **BOTH** the genre and learners' vocabulary size.

Documentary: slow pace, imagery, contextual cues

Multimodal input → cognitive overload

Teachers should take learners' vocabulary size when choosing multimodal materials

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THANK YOU!

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