

Introduction

- When retrieving the name of a picture, bilinguals automatically activate the object's name in both of their languages (Marian & Spivey, 2003; Thierry & Wu, 2007). It is unclear what the consequences of this parallel co-activation are for word retrieval success and speed.
- Bilinguals are often slower than monolinguals to retrieve words, even in their native and dominant language (e.g., Ivanova & Costa, 2008). This suggests that the co-activated object labels **interfere** with each other and that one label needs to be inhibited in order to select the label in the target language.
- However, some studies have found that translation equivalents **facilitate** naming (Costa et al., 1999; Gollan et al., 2005) and reduce tip-of-the-tongue experiences (Gollan & Acenas, 2004).
- Facilitation may occur because activation spreads from the translation equivalent to the target name through shared semantics, providing an activation boost (Gollan et al., 2005).
- Prior studies primarily tested early bilinguals who were highly proficient in both languages. We examined the effects of age of L2 acquisition and degree of L2 proficiency by testing late L2 learners who had varying levels of L2 proficiency.
- We also tested specific predictions of the interference and facilitation models by including measures of lexical frequency and L2 proficiency.

Research Questions

- Does knowing an object name in the second language facilitate or interfere with retrieval of the name in the native language?
- Is the effect modulated by lexical frequency or second-language proficiency?

Predictions:

- Lower-frequency words will be more affected by either facilitation or interference effects than high-frequency words.
- Bilinguals with higher L2 proficiency will demonstrate greater facilitation or interference effects than bilinguals with lower L2 proficiency.

Methods

Participants

- 42 native speakers of Brazilian Portuguese with varying levels of English (L2) proficiency (age 18-37, $m = 26.1$).
- Length of time in the U.S.: 2 weeks – 18 months ($m = 4.4$ months)
- Began learning English: 3 – 29 years old ($m = 11.8$ years)

Picture Naming Task in Portuguese (L1)

- 140 black-and-white line drawings (IPNP database)
- 25% of the words were cognates in Portuguese and English
- Response times (RTs) recorded using a voice-triggered microphone.
- Lexical frequencies from Corpus Brasileiro (Sardinha, 2009)

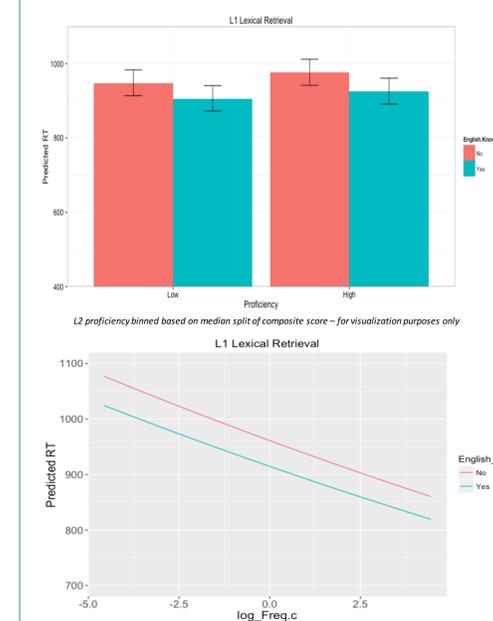
English Vocabulary Knowledge Test (L2)

- Same 140 pictures as Portuguese naming task
- Used to separate L1 naming trials into L2-known and L2-unknown

L2 English proficiency measures

	Minimum	Maximum	Mean	SD
Composite of 4 measures	-2.14	1.18	0	.85
Self-rating (mean of 6 skills) 1-7	1.83	5.67	4.44	0.80
Can-Do Questionnaire (mean) 1-5	1.72	4.61	3.57	0.72
Vocabulary (140 items)	21.4%	75.4%	50.1%	13.5%
MTELP (45 items)	33.3%	97.8%	73.9%	17.3%

Results



English-known

- Picture naming in Portuguese was faster when participants knew the picture's name in English

Lexical frequency

- Higher-frequency words were named faster than lower-frequency words, but the effect of knowing the English name was the same for high- and low-frequency words.

L2 proficiency

- There was no effect of English proficiency on naming speed in Portuguese.

Parameter (log scale)	Model 1: L2 Proficiency	Model 2: Lexical frequency
Intercept	6.84*** (6.79 : 6.90)	6.84*** (6.79 : 6.90)
Log Frequency (centered)	-.02** (-.04 : -.01)	-.02** (-.04 : -.01)
English-known	-.02*** (-.04 : -.01)	-.02*** (-.04 : -.01)
L2 Proficiency	-.02 (-.04 : .08)	
L2 Proficiency * English-known	.00 (-.00 : .01)	
Log Frequency * English-known		-.00 (-.01 : .01)

Discussion

- The findings support the proposal that **knowing an object's label in two languages facilitates naming in the native language**.
- The translation facilitation effect is **generalizable to late L2 learners** with varying levels of L2 proficiency; thus, facilitation is not limited only to early, highly proficient bilinguals.
- The activation boost explanation of the facilitation effect predicts larger benefits for low-frequency words and for participants with higher L2 proficiency. However, we found that the facilitation effect did not depend on lexical frequency or L2 proficiency.
- We propose that the translation facilitation effect is a **cumulative effect of L2 use** on L1 lexical items' resting level of activation rather than a transient effect (an activation boost at the moment of retrieval). This could be considered an *indirect* frequency effect on resting activation level.
- Our bilinguals were immersed in an L2 environment; it remains to be seen whether bilinguals who are not immersed show similar patterns in the L1.

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