

Modality effect in L1 and L2 word recognition among French late learners of English

Camille CORNUT, Gwendoline MAHE, Séverine CASALIS

SCALab UMR CNRS 9193, Université de Lille, France

Introduction

Contrary to first language (L1) learning, second language (L2) learning in school context is characterized by the predominance of the written modality – regarding the oral one. Therefore, one might expect a modality effect on word recognition, with written words being more accurately recognized than spoken ones, among low to moderate proficiency late L2 learners [10]. Furthermore, we would like to explore the links between orthographic and phonological forms of words, and thus highlight a possible transfer of one modality to the other. This kind of transfer would result in a better recognition of words in one modality (either visual or auditory) if they have been recognized beforehand in the other.



Objective A

To highlight a modality effect in L2 word recognition and a possible transfer from one modality to the other

Because French students are unceasingly confronted with printed documents in L1, in which they may encounter more infrequent words than in spoken language, we conducted an exploratory experiment in L1.

Objective B

To determine if those modality effect and transfer could also appear in L1



BACKGROUND MEASURES:

- On-line questionnaire [4,7]:
 - Reading habits
 - Experience with different languages
 - Schooling
 - Socio-economic level
- Positioning test in English (Dialang) [5]
- Speech therapy tests [2,8]:
 - ECLA16+: phonological, reading and spelling skills
 - EVALEC: pseudoword reading
- Neuropsychological tests [6]:
 - Non Verbal Intelligence Test

Method

PARTICIPANTS:

N = 36
French native speakers who learned English as an L2 in a school context
Mean Age = 24.11, SD = 4.59

VARIABLES:

Dependent:
• Accuracy

Independent:
• Session
• Modality

STATISTICAL ANALYSES:

Linear Mixed-effect
Modelling, using glmer function from lme4 package with R Software

ORIGINAL EXPERIMENTAL DESIGN:

Task 1: THING



QUING



Task 2: /θɪŋ/



/kwiŋ/



Lexical decision tasks in both modalities

Counterbalanced order of presentation of modalities

Same lists of stimuli in each modality

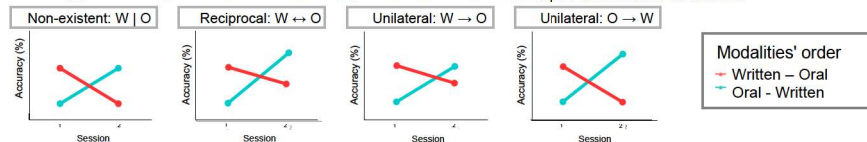
Objective A: 43 infrequent non-cognate English words and 43 pseudowords [3], strictly matched [1,9,11]

Objective B: 41 very rare French words and 41 pseudowords, strictly matched

Hypotheses

Objective A: *First hypothesis:* Modality effect → Written words > Spoken words → THING more accurately recognized than /θɪŋ/

Second hypothesis: Transfer from one modality to the other → 4 possible kind of influence:

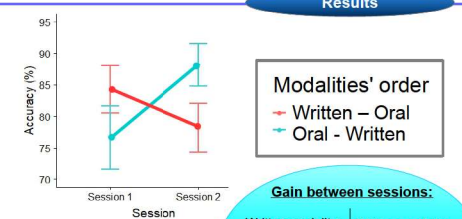


Objective B: *Exploratory experiment:* Modality effect?

Existing transfer?



Objective A

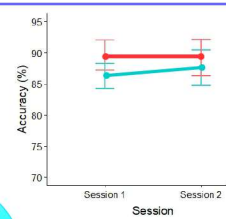
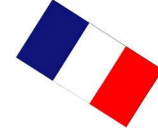


Gain between sessions:

Written modality: +3.91 points	Written modality: -2.08 points
Oral modality: +1.59 points	Oral modality: +3 points

Modality effect: $p < .001$ (W > O)
Session effect: $p < .001$ → **Transfer existing**
No interaction effect: $p = .45$ → **W ↔ O**

Objective B



No modality effect: $p = .246$
No session effect: $p = .553$ → **No Transfer**
Tendency to interaction effect: $p = .06$ → **W | O**

LIMITS

Low amplitude of the gain relied on the transfer between modalities
Stimuli are infrequent, may very rare, words: permissible analysis only on Accuracy, in both languages → No reaction time analysis

OPENINGS

What about:

- The interaction between modality effect and cognateness in L2?
- The impact of L1 reading skills?
- At the onset of L2 learning?

DISCUSSION & CONCLUSION



Modality effect in L2: Written words more accurately recognized than spoken ones
Is this due to the predominance of written materials during the learning in a school context?



Reciprocal transfer in L2 between Written and Oral Modalities:
Better recognition of written words already recognized in oral modality
Better recognition of spoken words already recognized in written modality

No modality effect nor transfer in L1



Contact: camille.cornut@univ-lille.fr

Bibliography:
(1) Ferrand, L., New, B., Brysbaert, M., Keuleers, E., Bonin, P., Meol, A., ... & Pallier, C. (2010). The French Lexicon Project: Lexical decision data for 38,840 French words and 38,840 pseudowords. *Behavior Research Methods*, 42(2), 488-496. (2) Gola-Asmussen, C., Lequette, C., Poget, S., Rouyer, C., & Zorman, M. (2011). ECLA-16+: Evaluation des compétences de lecture chez l'adulte de plus de 16 ans. Grenoble: Université de Provence Aix-Marseille I-Cognisciences LSE Université Pierre Mendès. (3) Keuleers, E., & Brysbaert, M. (2010). Wuggy: A multilingual pseudoword generator. *Behavior Research Methods*, 42(3), 627-633. (4) Leffly, D. L., & Pennington, B. F. (2000). Reliability and validity of the adult reading history questionnaire. *Journal of Learning Disabilities*, 33(3), 286-296. (5) <https://dialangweb.lancaster.ac.uk/>. (6) Raven, J. C., John Hugh Court, & Raven, J. (1998). *Progressive matrices standard (PMS)*. Éditions du centre de psychologie appliquée. (7) Reiber, J. E., Warner, V., Johnson, J. G., & Dohrenwend, B. P. (2011). Inter-generational longitudinal study of social class and depression: a test of social causation and social selection models. *British Journal of Psychiatry*, 201, 178-184. (8) Springer-Charolles, L., Coll, P., Bachevalier, D., & Kipfer-Piquard, A. (2005). French normative data on reading and related skills from EVALEC, a new computerized battery of tests (end grade 1, grade 2, grade 3, and grade 4). *Revue européenne de psychologie appliquée/European Review of Applied Psychology*, 55(3), 157-186. (9) Van Heuven, W. J., Mandera, P., Keuleers, E., & Brysbaert, M. (2014). SUBTLEX-UK: A new and improved word frequency database for British English. *The Quarterly Journal of Experimental Psychology*, 67(6), 1176-1190. (10) Nevo O. (2017). Orthographe et reconnaissance des mots parlés chez les apprenants tardifs de L2 (Thèse de doctorat inédite). University of Turku. (11) Yankov, T., Balota, D., & Yap, M. (2008). Moving beyond Coltheart's N: A new measure of orthographic similarity. *Psychonomic Bulletin & Review*, 15(5), 971-979.