Enhancing L2 French Learners’ Attention to Prepositions: An ONLINE Study of Textual Enhancement

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What is textual enhancement?

A technique that involves manipulating the typographical features of a written text so that the perceptual salience of certain grammatical forms of that text are increased. This may be achieved by changing the **font style**, enlarging the **character size**, **underlining**, **bolding**, etc.

Goal: to render more **salient** particular features of written input that learners normally may not notice and make form-meaning connections for.
TE is based on the following theoretical positions:

- SLA cannot happen without exposure to comprehensible input
- In order for input to be usable for acquisition, learners must minimally pay attention to the input and process it in some way (e.g., Robinson, 1995; Schmidt, 1990, 1995, 2001; Tomlin & Villa, 1994)
BACKGROUND

Previous Studies on TE

Mixed Results
Positive Effects for TE:
• *Jourdenais et al. (1995)
• Shook (1994)
• Simard (2001)
• Wong (2002)
• Lee (2007)

No Effect for TE:
• Leow (1997)
• *Leow (2001)
• *Leow et al. (2003)
• Overstreet (1998)
• Wong (2003)

General Limitation:
Majority of studies lack any kind of online measure of noticing during reading

Partial Effects for TE
• *Alanen (1995)
• Izumi (2002)
• Overstreet (2002)
• White (1998)

* Think-aloud protocols as online measure
Wong (2002)

- Wong enhanced L2 French learners’ attention to written input in 3 ways:
  - (1) bolding target forms (French prepositions à and en with geographical locations)
  - (2) orienting learners to pay attention to target forms
  - (3) manipulating the level of input in which target forms were presented (sentence level vs discourse level)
Target Forms

Prepositions \( \text{à} \) and \( \text{en} \) used with geographical locations in French

The preposition “\( \text{à} \)” must be used with cities to say that one is \textit{in} a specific city.

\textit{Marie est à Dijon}/Mary is in Dijon.

The preposition “\( \text{en} \)” is used with countries that have a feminine grammatical gender.

\textit{Marie est \textbf{en} France}/Mary is in France.
Procedure

• Pretest two weeks before treatment on target forms
  – Fill in the blank prepositions, twenty-item, ten target, ten distractor

• Treatment in classroom setting
  – Participants read text in one of eight conditions
    • +/- Textual Enhancement (TE)
    • Paragraph/Sentence
    • +/- Orientation

• Immediate posttest
  – Same format as pretest
Results of Repeated Measures ANOVA

• Main effect for TE, $p = .001$
• Main effect for input level, $p = .007$
• Main effect for time, $p < .0001$
• No interactions

Summary

• A positive significant effect was found for TE.
• A positive significant effect was found for sentence level input.
• Orientation, as operationalized in the study, did not have a significant impact on acquisition.
Limitation Of Wong (2002)

• No formal measure of noticing
Do learners notice the enhancement?

Eyetracking Study with TE

(In collaboration with Mark Overstreet, Dickenson College)

• WHAT do learners fixate on?
• HOW OFTEN?
• HOW LONG?
Same materials as Wong (2002)
Research Questions

- Do textual enhancement and/or input level have an effect on learners’ reading of locative prepositions ("à" versus "en") in French?
  - (1) Are there effects on the probability that a target item will be fixated by learners of French as measured by the Eyelink II Eyetracking System?
  - (2) Are there effects on the number of fixations made by learners of French as measured by the Eyelink II Eyetracking System?
  - (3) Are there effects on learners’ first fixation duration made by learners of French as measured by the Eyelink II Eyetracking System?
Participants

- Number of Participants: 56
- Level of enrollment: 102.66
- At the time of the experiment, participants had not received any formal instruction on the target structure

Note: Additional data have been collected and will be analyzed this summer.
Procedure

• All data was collected outside of the classroom in a lab.

• Pretest before treatment
Procedure

- Calibrate pupil to Eyelink II Eyetracking System

- Subject reads each slide at his/her own pace. Presses *Advance Button* to move from one slide to the other.

- Paper-and-pencil posttest immediately after treatment
Groups

- (+TE, S) n = 14
- (-TE, S) n = 14
- (+TE, D) n = 14
- (-TE, D) n = 14

TE = textual enhancement
S = sentence level
D = discourse level

Patrick Pinard est le bébé de la famille. Il a 28 ans et il est psychologue en Espagne.
Sans doute, Patrick parle très bien espagnol. En fait, sa première spécialité à
l'université était la littérature espagnole. Pourtant, quand il est tombé amoureux de
son professeur de psychologie, il a changé d'avis. Aujourd'hui, Patrick travaille dans
un hôpital à Séville.

Thomas, leur fils, est médecin en Belgique.
Thomas a rencontré sa femme, Caroline, à Bruxelles.
Analysis and Results

• All participants read the same paragraph prior to the treatment phase. Only those participants whose reading time on that paragraph was within 1.5 standard deviations of the mean.
Answer 1

• Is there an increase in probability of fixation?
  – Sentence level
    • Unenhanced 61.7
    • Enhanced 65.3
  – Paragraph level
    • Unenhanced 47.9
    • Enhanced 58.2
Answer 2

• Is there an increase in number of fixations?
  – Main effect for level
  – Main effect for enhancement
  – Main effect for target (!?!)
Results 2
Number of Fixations

![Graph showing number of fixations for enhanced and unenhanced text]

- Enhanced
- Unenhanced
Answer 3

• Is there an effect on the first fixation duration?
  – No main effects
Results 3
First Fixation Duration

Time (ms)

Enhanced  Unenhanced

Sentence 241.76 231.59 232.72
Paragraph 235.48 195.85 216.98
Sentence 231.59 217.28
Paragraph 220.18 217.28
Analyses of paper-and-pencil posttest in progress
Summary of Preliminary Results

- TE has a positive effect on the probability that a target form will be fixated.
- TE has a positive effect on the number of target fixations.
- Sentence-level input results in greater number of target fixations than discourse-level input.
- Subjects fixated on preposition “à” more frequently than on the preposition “en.”
Further Analysis

• Will participants who received TE treatment go on to fixate on targets in the absence of enhancement?