Tokowicz, N. & MacWhinney, B. (2005). Implicit and explicit measures of sensitivity to violations in second language grammar. *Studies in Second Language Acquisition, 27,* 173-204. https://doi.org/10.1017/S0272263105050102

L2 reading comprehension: Do learners detect L2 grammatical violations?

What this study was about and why this research is important

Learning a second language (L2) in a classroom can be different from acquiring a native language (L1). Learners often acquire grammatical rules about the L2 and some researchers hypothesize that learners consciously rely on these rules during reading comprehension. This study investigated whether Spanish L2 learners detect violations of grammatical errors in the L2 while reading L2 Spanish sentences. English L2 learners of Spanish judged whether Spanish sentences were grammatically well formed or not while their brain activity was monitored. The results showed that the learners were only 50-70% accurate in judging whether a sentence was grammatical. Their brain activity, however, revealed sensitivity to errors when the grammatical structure was similar between English and Spanish or when the grammatical structure was unique to Spanish (i.e., no parallel structure exists in English), even when their judgments about the sentences were not very accurate. This suggests that L2 learners may be sensitive to L2 grammatical information on some level, even before they can accurately judge whether sentences contain grammatical errors.

What the researchers did

- Twenty university-level English L2 learners of Spanish from 1st-4th semester basic Spanish classes read sentences on a computer screen. Sentences were either grammatically correct or incorrect, containing one of three types of errors:
  - progressive sentences without obligatory auxiliary (*cocinando* 'cooking' instead of *esta cocinando* 'is cooking'); this structure is similar to English in that the auxiliary 'be' would be required in both languages.
  - mismatch in number agreement (*el niños* 'the$_{singular}$ kids' instead of *los niños* 'the$_{plural}$ kids'*)*; this structure is different from English in that in English the definite determiner does not mark agreement for number.
  - mismatch in gender agreement (*un fiesta* 'a$_{masculine}$ party' instead of *una fiesta* 'a$_{feminine}$ party'); this structure is unique to Spanish because English does not have grammatical gender.
- Learners read 360 sentences, half of which were grammatically correct and half of which were grammatically incorrect. 120 of the sentences contained the three structures described above; the remaining 240 sentences contained a variety of other sentence types.
- Learners were asked to judge whether each sentence was a grammatically well-formed sentence in Spanish or not. This task targeted participants' grammatical knowledge of Spanish. Meanwhile, learners' brain activity was measured to monitor the underlying comprehension processes.

What the researchers found

- For the grammaticality judgments, learners were least accurate in judging the unique construction (at chance), and better with the similar and the different constructions (above chance).
- The monitoring of brain activity revealed that learners were not sensitive to grammatical errors in sentences in which the grammatical structure was different between English and Spanish. In sentences with similar structures in English and Spanish, and with structures unique to Spanish, learners' brain activity revealed sensitivity to grammatical errors. This sensitivity was greatest for errors in sentences with structures unique to Spanish, whereas this is the task during which learners performed at chance in their grammaticality judgements.
- Proficiency did not have an effect on judgment accuracy or brain activity, suggesting that sensitivity to grammatical errors in the L2 is modulated by cross-language similarities rather than language experience.

Things to consider

- Even though overt performance might suggest otherwise, the brain activity showed that L2 learners were still sensitive to some grammatical errors in the L2, indicating that L2 learners may not need to access conscious grammatical knowledge during L2 reading comprehension.
- Knowing which structures learners are sensitive to, even when their overt performance might indicate otherwise, can potentially impact the way such structures are taught in a classroom.
- Learners were most sensitive to grammatical structures that were similar in L1 and L2 or that were unique to the L2, in this case Spanish. The results may, however, not be generalizable to other languages or structures.

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