

Comparing the effects of implicit and explicit instruction on Spanish heritage learners' linguistic knowledge

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- What impact does heritage language instruction have on heritage language knowledge?
- HL learners' language development may differ from that of L2 learners due to their different language learning experience.
- Little empirical evidence on the specific ways in which it differs and on how those differences may affect learning outcomes in instructed contexts.

- Research about the effectiveness of heritage language instruction is still very scarce (see Bowles, 2019; Montrul & Bowles, 2017; Valdés, 2017 for reviews).
- Limited research that has compared the efficacy of various types of instruction on HLs suggests that explicit instruction may be more effective than implicit instruction (e.g., Torres, 2018). But is this true no matter what type of assessment measure we use?
- Many studies lack uninstructed control groups and some lack pre-test measures prior to instruction.
- Delayed post-tests are also relatively uncommon.



Bowles and Fernández Cuenca (accepted)

- This study set out to begin to address these gaps:
- To compare the effects of explicit and implicit instruction to a tests-only control group
- To determine whether one type of instruction led to better outcomes on tests measuring explicit or implicit knowledge
- To examine outcomes not only immediately after instruction but also after a delay (1 week)



- Explicit vs implicit knowledge and its measurement
- Explicit knowledge
 - Associated with declarative memory
 - Access is slow
 - Verbalizable and conscious
- Implicit knowledge
 - Associated with procedural memory
 - Access is rapid
 - Typically not verbalizable and unconscious
 - More useful for real-time communication



- Although there are no “pure” measures of the two types of knowledge, there are tests that primarily tap one or the other/favor the use of one as opposed to the other
- Ellis (2005) factor analysis (L2 learners)
 - Elicited imitation, oral narration, and timed GJT -> implicit knowledge
 - Metalinguistic knowledge test, untimed GJT -> explicit knowledge
- Bowles (2011) confirmatory factor analysis with HL learners of Spanish with little formal instruction (little explicit knowledge) and L2 learners
 - L2 learners scored high on tests intended to tap explicit knowledge, low on tests intended to tap implicit knowledge
 - HL learners showed the reverse pattern
 - Factor loadings confirmed the separation of the knowledge types on the tests



- Subsequent research (with L2 learners) largely confirms this pattern using a variety of methodologies (e.g., Godfroid et al, 2015)
- Empirical evidence supports the validity of Elicited Imitation as an effective measure of global proficiency, specific linguistic structures, and effectiveness of instructional interventions (Yan et al., 2015)
 - long sentences (relative clauses) exceeding STM capacity
 - interruption between the hearing of the sentence and repetition (to discourage rote repetition)
- Empirical evidence supports that EIT measures implicit knowledge (Ellis, 2005; Ellis & Loewen, 2007; Bowles, 2011; Zhou, 2012)
- Often used as an outcome measure to assess the effects of instruction in previous studies (Ellis, Loewen & Erlam, 2006; Erlam & Loewen, 2010; Li, 2010; Akakura, 2012)



Research Questions

1. Compared to a tests-only control group, do heritage learners benefit from explicit or implicit instruction on the past Spanish subjunctive?
2. If so, are the learning gains in explicit or implicit knowledge?



Method

Target form

- Spanish past subjunctive in (in)existential clauses (same form used in Potowski, Morgan-Short, & Jegerski, 2009)

(1a) Joanne no encontró ningunos pantalones que le gustaran
Joanne neg find-PST-3SG any pants that-REL she-DAT like-PST-SBJV
“Joanne didn’t find any pants (that) she liked”

(1b) Joanne encontró unos pantalones que le gustaban
Joanne find-PST-3SG some pants that-REL she-DAT like-PST-IND
“Joanne found some pants (that) she liked”

(1c) *Joanne no encontró unos pantalones que le gustaban
Joanne neg find-PST-3SG some pants that-REL she-DAT like-PST-IND
“Joanne didn’t find any pants (that) she liked”



Participants

- Because subjunctive use in some instances is variable (e.g., Gudmestad, 2012), we asked monolingually-raised speakers of Spanish from different varieties (living in the community where the HLs were tested) to rate sentences on a 5-point Likert scale and to correct any they found unacceptable
- Sentences 1a (negation, imperfect subjunctive):
 - Acceptable: 96%, Unacceptable: 4%
(relative clause reduction)
- *Sentences 1c (negation, imperfect indicative):
Acceptable: 26%, Unacceptable: 74%

Participants

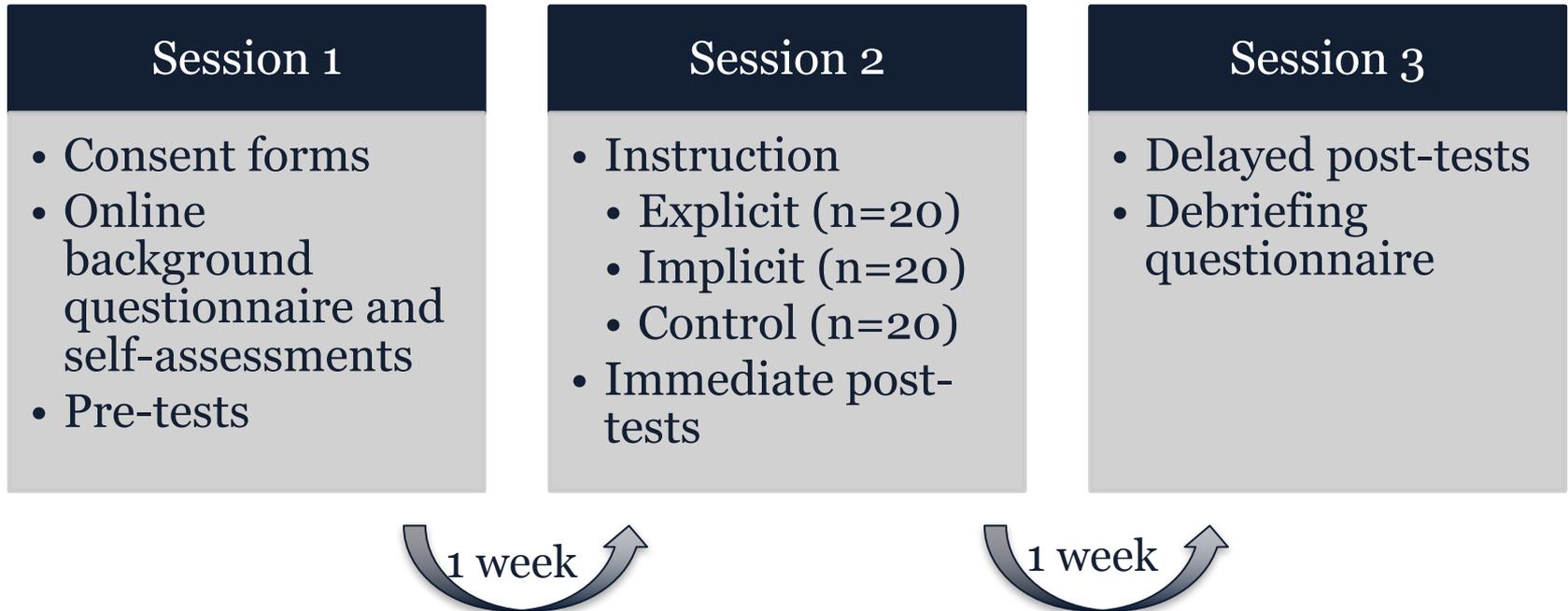
- Initial pool (N=66) second-generation Spanish heritage speakers
- 93% of learners born in US and raised in Chicago or suburbs; 7% born in Spanish-speaking countries and came to the US before age 6
- All reported learning Spanish from birth
 - 45% simultaneous bilinguals, 55% sequential bilinguals
- 6 were eliminated because they scored near ceiling on pre-test, leaving N=60 in the final sample

Mean self-ratings (scale 1-10)

	English	Spanish
Understanding	9.5	8.4
Reading	9.5	7.7
Speaking	9.5	7.9
Writing	9.4	7.0
Pronunciation	8.9	7.6

- None had attended dual-language schools and reported using more English than Spanish in daily life

Data Collection



Instruction

- Explicit instruction (n=20) (inspired by Processing Instruction, VanPatten & Cadierno, 1993)
- Consisted of
 - explicit information (grammatical rule) about the target structure
 - a warning about processing strategies that could interfere with acquisition of the structure
 - comprehension check questions to ensure that learners could distinguish between indicative and subjunctive morphology and understood the rule
 - 62 items of structured input practice with correct/incorrect feedback

Location of the subjunctive

- The past subjunctive is generally located in subordinate clauses (clauses that depend on the main clause for existence) and these subordinate clauses are generally introduced by “que”
- Example: Joanne no encontró unos pantalones que le gustaran

Let's make sure you understood

- #2 If the person or thing in the main clause refers to someone or something you know, what tense do you use in the subordinate clause?
- a. Subjunctive
 - b. Imperfect

23 “...paseara por los parques”



- a. Michael vio a mucha gente que...
- b. Michael no vio mucha gente que...

Instruction

- **Implicit instruction (n=20)**
 - Input flood with same number of instances of the target structure as the explicit instruction condition

En esta actividad vas a leer una entrada en el diario de Michael en la que habla de su viaje a Chicago. Lee atentamente y responde a las preguntas que aparecen después del texto.

Un verano en Chicago:

La semana pasada fui a visitar Chicago con mi hermano. Nunca había estado en Chicago y mi impresión de la ciudad fue impresionante. Mi hermano y yo probamos la pizza estilo Deep dish y fuimos al loop. Los ciudadanos de Chicago fueron muy amables todo el tiempo. En mi viaje conocí a mucha gente que había nacido y crecido en Chicago. Charlé con gente que viajaba

en autobús al trabajo todos los días. La comida de Chicago es muy fuerte de Chicago. Como era de esperar, mi hermano y yo hablamos con n

Preguntas de comprensión:

1. **El autor del diario no viajó solo a Chicago ¿Con quién viajó?**
2. **¿Qué tipos de comida probó? Lista por lo menos 3 tipos de comida diferentes**

Instruction

- Control (n=20)
 - Received no instruction in session 2
 - Completed all tests only
 - To enable us to assess test/practice effects



Pre- and post-tests

- **Bimodal Acceptability judgment test (AJT) – Explicit**

Read/listen to the following sentences and using the scale below indicate what you think their acceptability is. If you think that a sentence is not totally acceptable, please make the necessary corrections to make it sound better.

1. En mi escuela, no había profesores que hablaran bien español

1-totally unacceptable 2- unacceptable 3- neutral 4- acceptable 5- perfectly acceptable

2. Susana no compró un televisor que costaba \$ 2.000 dólares en Amazon

1-totally unacceptable 2- unacceptable 3- neutral 4- acceptable 5- perfectly acceptable

- **Elicited imitation test (EIT) - Implicit**

Listen to the following sentences carefully and indicate whether these sentences are consistent with your personal experience by saying “Sí” “No” o “No se aplica” then repeat them out loud in correct Spanish. (Sometimes this will mean repeating the sentence exactly as you heard it, and sometimes this will mean changing some part of the sentence).

Cuando era más joven..... (context)

Practice item:

- No me gustaba pasar tiempo con mis padres
- 1. No tenía amigos que hablaran chino mandarín
- 2. Tenía muchas fiestas de cumpleaños
- 3. No tenía hermanos que escuchaban mis problemas
- 4. Mis hermanos jugaba con juguetes peligrosos

Scoring

- AJT
 - Grammatical items rated as “acceptable” or “perfectly acceptable: -> 1
 - Ungrammatical items rated as “unacceptable” or “totally unacceptable” -> 1
 - “Neutral” items were discarded
 - Other responses (e.g., ungrammatical items rated as “acceptable” or “perfectly acceptable” -> 0)

- EIT
 - Ungrammatical items corrected with past subjunctive -> 1
 - Ungrammatical items repeated verbatim or with another erroneous verb form -> 0
 - Grammatical items repeated accurately -> 1

- 18 of 2816 EIT responses to target stimuli were eliminated from the dataset (0.6%)
 - participants simplified the sentence, eliminating the relative clause
 - participants made the statement positive, thereby disallowing the past subjunctive
 - the verb was not uttered or was inaudible
- 2797 tokens remained for analysis

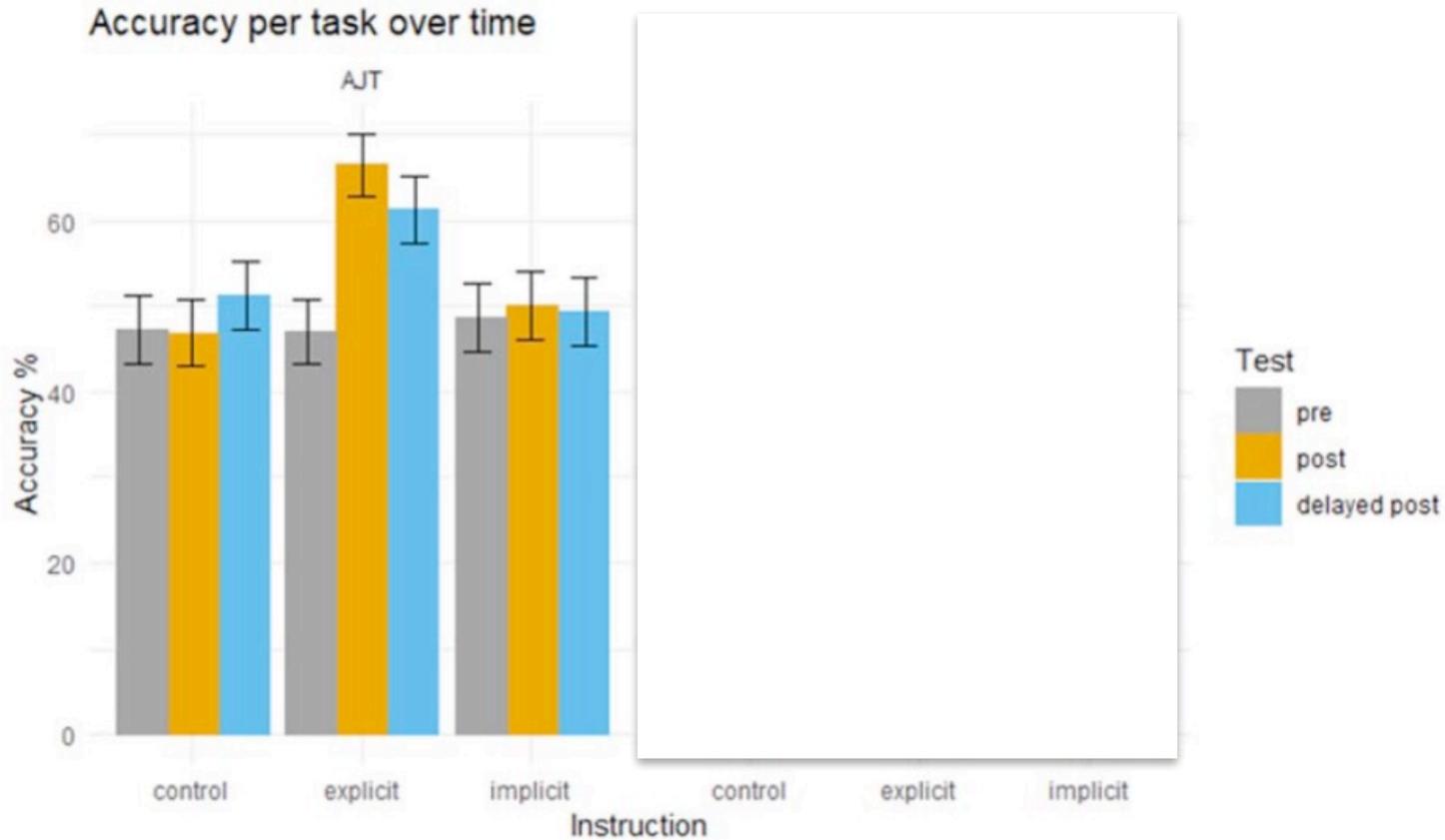


Analysis

- Mixed-effects logistic regressions
- Fixed effects:
 - instruction (explicit, implicit)
 - Test (AJT, EIT)
 - time (pre, post, delayed posttest)
- Random effects (participants and items)
- *lme4* (Bates, Maechler, Bolker, & Walker, 2015), *lmerTest* (Kuznetsova, Brockoff, & Christensen, 2014) *emmeans* (Lenth, Sigmann, Love, Buerkner, & Herve, 2018) packages in R

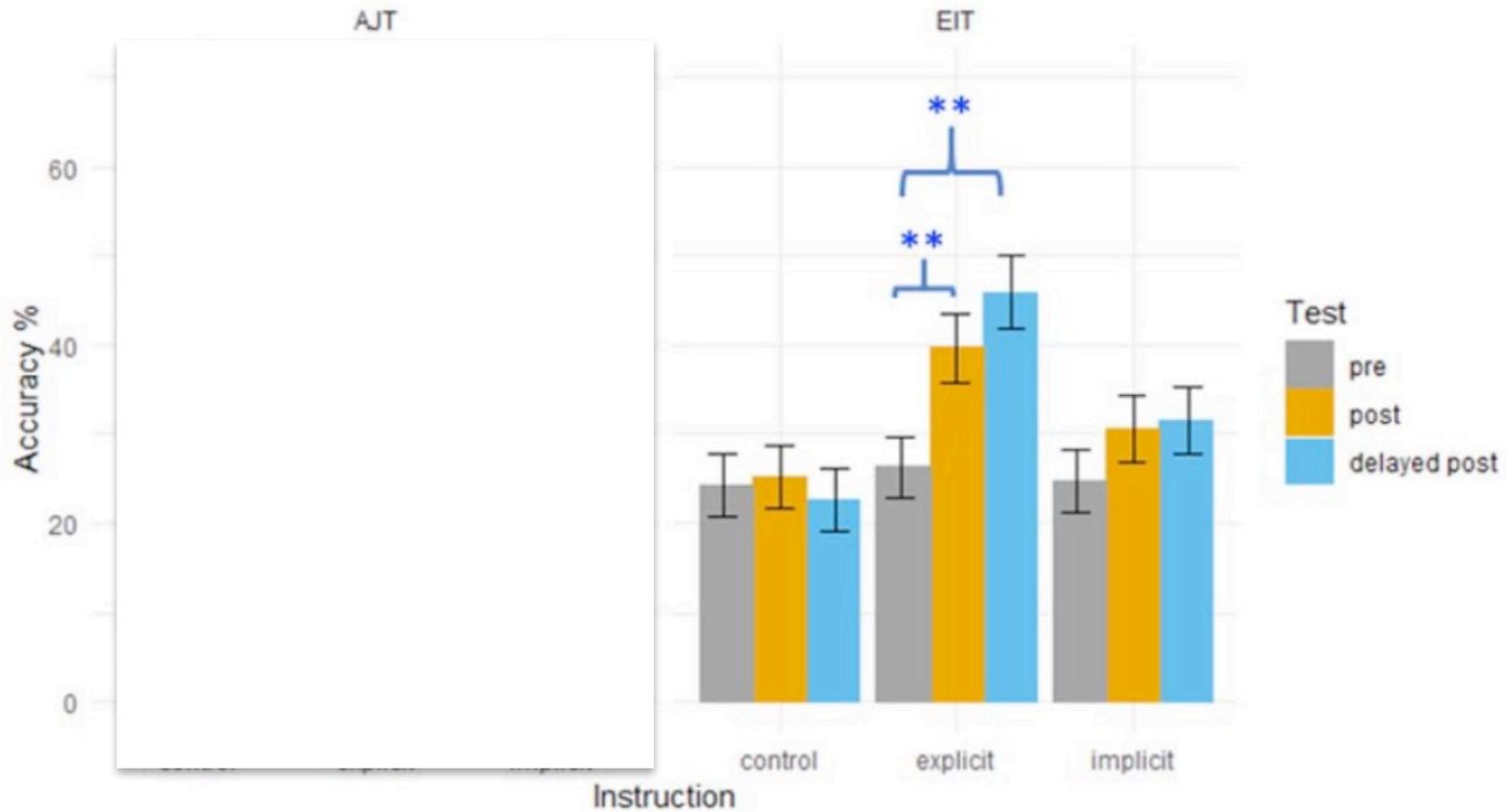


Results



Results

Accuracy per task over time



Results

RQ1. Compared to a tests-only control group, do heritage learners benefit from explicit or implicit instruction on the past Spanish subjunctive?

Yes – but significant gains were only the result of explicit instruction. The group that received implicit instruction was statistically similar to the tests-only control.

RQ2. If so, are the learning gains in explicit or implicit knowledge?

Significant learning gains were only found in implicit knowledge, and this effect increased from the immediate post-test to the delayed post-test 1 week later.



Discussion

- Results are in line with some past L2 research that showed the explicit instruction can lead to implicit knowledge (Loewen & Erlam, 2006; White & Ranta, 2002).
- Results also align with prior IHLA findings that suggest that explicit instruction may be beneficial because it orients HL learners to form; its impact is likely more uniform than that of implicit instruction.
- Does that mean that explicit instruction did not lead to explicit knowledge in our study?
 - We confirmed that learners understood the explicit information they received during instruction (comprehension check questions) but they may not have made use of it, based on the lack of significant gains in the AJT.
 - Debriefing: “I used the rule for the written part, and more intuition for speaking” (participant 1603) – additional evidence that the two tests were tapping different knowledge sources
 - Role of not only test modality but also response modality?

Discussion

- More research is needed!
- It is possible that implicit instruction requires more exposure to be as effective as explicit instruction -> more instances of target structure?
- We need studies with oral and written tests tapping explicit and implicit knowledge.
- The impact of not just assessment modality but also response modality should be investigated.



(Broader) Discussion

- In a quantitative meta-analysis on the effects of HL instruction, Bowles and Torres (in preparation) calculated 46 control-instructed effect sizes.
- We aggregated effect sizes for
 - explicit instruction ($k=22$, $d=.35$, 95% CI .18 to .52)
 - implicit instruction ($k=7$, $d=.44$, 95% CI -.11 to .99)
 - language arts instruction (with children only) ($k=16$, $d=.79$, 95% CI .49 to 1.09)
- We also identified areas in need of further research:
 - 75% of studies in our sample on effects of heritage language instruction were on Spanish and there is very little research on effects of instruction in other heritage languages, even those that have been studied fairly extensively (e.g., Russian, Chinese, Korean)
 - Need for uninstructed control groups
 - Most instructional studies were short in duration (4 weeks or less) and lacked post-tests

(Broader) Discussion

- Longer duration studies were done with children and involved language arts instruction, making it impossible to tease apart the effects of age, duration, and type of instruction
- Larger N sizes would enable us to have more statistical power and make more robust generalizations: multi-site collaborations and replications
- Incorporation of delayed post-tests (with longer delays if possible) would show to what extent gains from heritage language instruction are long-lasting
- We also need to understand not only what effect instruction has in terms of linguistic outcomes but also in terms of non-linguistic outcomes as well (e.g., attitudes).



Bowles, M.A. (Ed.) (under contract). *Outcomes of University Spanish Heritage Language Instruction in the United States*. Washington, DC: Georgetown University Press.



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