Measuring Japanese learners’ implicit and explicit knowledge of adverb placement in English

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1. L2 learners’ knowledge of adverb placement in English

   A. Ken often drinks wine.  [ S Adv V O ]
   B. *Ken drinks often wine.  [*S V Adv O ]

(2) Varied findings with varied methods.
   A. Near perfect accuracy in production data (e.g., Lardiere, 1998)
   B. Poor performance in judgment and preference tasks (e.g., White, 1991)

(3) My studies
   A. Urano (2011b)
      • Free written production data with time pressure by 11 Japanese university students
      • 100% accuracy in adverb placement in 166 obligatory occasions
   B. Urano (2011a)
      • Timed and untimed grammaticality judgment tests with 36 Japanese university students
      • 26.6-31.6% accuracy in judging ungrammatical sentences involving adverb placement

2. Research question

(1) Research question:
   • Why do L2 learners perform poorly in judgment tasks while they make very few errors in production?

(2) Possible explanation:
   A. L2 learners’ knowledge may be qualitatively different from that of native speakers (cf. the fundamental difference hypothesis proposed by Bley-Vroman, 1989, 2009).
      (a) Native speakers’ knowledge concerns what is ungrammatical.
      (b) L2 learners’ knowledge may be related to what is possible.
   B. If this is the case, L2 learners will perform better in a preference task, in which they choose a better sentence between a grammatical sentence and an ungrammatical one, than in a judgment task, which requires them to point out ungrammaticality.
3. Method

(1) Participants
43 native Japanese speakers at a private university (30 females and 13 males with the mean age of 19.7 years) agreed to participate in the experiment.

(2) Materials
A. Target structures.
   • Target structure: adverb placement (ADV)
   • Also included for comparison: three other structures used in Urano (2011a, 2011b), i.e., past tense –ed (TNS), 3rd-person –s (AGR), and pronoun case (CASE)
B. Test sentences. (See Appendix for sample sentences.)
   • Target structure:
     ➢ 5 grammatical and 5 ungrammatical sentences were created for ADV
     ➢ The length of each sentence was 5 words; 8-9 syllables (M=8.60); 26-33 characters (M=28.60)
   • Other structures:
     ➢ 2 grammatical and 2 ungrammatical sentences were created for TNS, AGR, and CASE (2x2x3=12 sentences).
   • Distractors:
     ➢ 10 distractor sentences were also added to the pool.
C. Tests. Four separate tests were created: (a) timed GJT, (b) untimed GJT, (c) sentence preference task (PREF), and (d) forced-choice sentence preference task (F-PREF).
   • Timed GJT (T-GJT).
     ➢ The total of 32 test sentences were randomly ordered and presented on a computer screen using Microsoft PowerPoint for Mac 2011.
     ➢ Each sentence was presented for a limited time period based on the formula proposed by Shimada (2010, p. 44), and the participants judged whether they were grammatical or not. The mean presentation time was 3.81 seconds, ranging from 3.10 to 4.60 seconds.
   • Untimed GJT (U-GJT).
     ➢ The same 32 sentences were presented on paper, and the participants made grammaticality judgments without time pressure.
   • PREF.
     ➢ Each of the 32 test sentences was paired with is ungrammatical or grammatical counterpart. The participants were asked to judge which was grammatical. They also had a choice to judge “Both are grammatical” or “Neither is grammatical.”
   • F-PREF.
     ➢ The same 32 sentence pairs were presented again; this time, the participants were required to choose either one of the two sentences.

(3) Procedure
   • The 4 tests were administered in the above order. The entire session took approximately 35 to 40 minutes.
4. Hypotheses

(1) The participants will perform poorly in the judgment tests, both timed and untimed, in which the ungrammatical sentences involving adverb placement need to be detected (see Urano, 2011a; White, 1991).

(2) Accuracy scores in the preference tasks will be higher than those in the judgment tasks.

(3) The participants will perform better in the forced-choice preference task than in the preference task in which they have a choice to judge “Both are grammatical” or “Neither is grammatical.”

5. Results

(1) T-GJT vs. U-GJT

<table>
<thead>
<tr>
<th></th>
<th>TNS</th>
<th>AGR</th>
<th>CASE</th>
<th>ADV</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-GJT</td>
<td>81.4</td>
<td>75.6</td>
<td>68.6</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>(32.8)</td>
<td>(29.6)</td>
<td>(39.4)</td>
<td>(27.3)</td>
</tr>
<tr>
<td>U-GJT</td>
<td>98.8</td>
<td>93.0</td>
<td>82.6</td>
<td>27.0</td>
</tr>
<tr>
<td></td>
<td>( 7.6)</td>
<td>(20.6)</td>
<td>(33.3)</td>
<td>(34.9)</td>
</tr>
</tbody>
</table>

Figure 1. Accuracy for T-GJT & U-GJT

Table 2. ANOVA Table for T-GJT & U-GJT

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>p</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test (T)</td>
<td>1</td>
<td>15.923</td>
<td>.000</td>
<td>.275</td>
</tr>
<tr>
<td>Rule (R)</td>
<td>3</td>
<td>56.143</td>
<td>.000</td>
<td>.572</td>
</tr>
<tr>
<td>T * R</td>
<td>3</td>
<td>2.877</td>
<td>.039</td>
<td>.064</td>
</tr>
</tbody>
</table>

Post-hoc comparisons
a. Within tests
T-GJT: [TNS, AGR, CASE] >* ADV
U-GJT: [TNS, AGR, CASE] >* ADV
b. Between tests
TNS: U-GJT >* T-GJT
AGR: U-GJT >* T-GJT
CASE: U-GJT >ns T-GJT
ADV: U-GJT >ns T-GJT

(2) PREF vs. F-PREF

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>PREF</td>
<td>33.7</td>
<td>26.8</td>
</tr>
<tr>
<td>F-PREF</td>
<td>52.1</td>
<td>30.3</td>
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</table>

$t(42)=4.450, p<.001$, effect size: $r=.567$

(3) The 4 tests

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Figure 2. Accuracy for the 4 tests

$F(3,126)=8.063, p<.001$, effect size: $η²=.161$

Post-hoc comparisons
[T-GJT, U-GJT, PREF] <* F-PREF
6. Discussion

(1) Poor performance in the two judgment tasks (Table 1 & Figure 1)
   - The learner knowledge of adverb placement is different from that of the other grammatical structures.
   - More precisely, it is possible that L2 learners do not know, either implicitly or explicitly, that adverbs in English cannot be placed after thematic verbs, at least in the same way as native speakers.

(2) Better performance in the preference tasks (Table 3 & Figure 2)
   - L2 learners somehow prefer adverbs before rather than after the verb, but they may think both are acceptable.

(3) Methodological issues
   - Although free production data are sometimes considered an ideal measure of implicit knowledge of L2 morpho-syntactic rules (e.g., Ellis, Loewen, Elder, Eralm, Philp, & Reinders, 2009, p. 28), they cannot be used to measure the knowledge of adverb placement.
   - Forced-choice preference tasks will be useful in such situations.

7. References


8. Appendix. Sample test sentences

(1) A. Peter quietly entered the room.
   B. *Mary closed quietly the notebook.
(2) A. Linda carefully pushed the button.
   B. *Tom answered carefully the questions.
(3) A. John slowly counted the money.
   B. *Janet ate slowly the breakfast.