The L1 influence on the processing of L2 tense-aspect by L2 learners

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Abstract

The present study aims to investigate the effect of L1 on the processing of L2 tense-aspect by adult Chinese and Arabic learners of English. A visual-world eye-tracking task, a sentence-matching task, and an acceptability judgement task were used to measure the learners' L2 implicit and explicit knowledge. The preliminary results have suggested that L2 learners' performance in on-line tasks was largely influenced by their respective L1s, which suggests that late L2 learners may not be able to fully acquire L2 morphosyntactic structure which are different in their L1.

Keywords: cross-linguistic influence, L2 tense-aspect, L2 processing

Introduction

The amount of research into the acquisition of L2 tense-aspect has been increasing over the past two decades. Previous studies have found that some learners have persistent difficulties or exhibit little progress in their learning and usage of L2 tense-aspect even they are advanced learners. This often happens when the relevant L2 tense-aspect structures are different or absent in the learners' L1, which suggests that learners' L1 may have a strong or even permanent influence on the acquisition of L2 grammatical knowledge. Some recent studies (e.g., Roberts & Liszka, 2013) also found that even though some learners are able to display explicit and correct knowledge of L2 tense-aspect, they are not able to apply their knowledge in real-time comprehension. A great majority of previous studies have focused on L2 learners from European language backgrounds. Learners with Mandarin or Arabic L1 background are still underrepresented, and to my knowledge, these two learner groups have not been paired together so far. Considering the two languages are very different in how they encode tense and aspect, it is worth examining the influence of L1 by measuring L2 knowledge displayed by Chinese and Arabic learners.

Methodology

Participants

The study includes one control group of native English speakers and two experimental groups of Chinese and Arabic native speakers who learn English as a second language. All the participants were recruited at a university in

England, and they are all university students. All the L2 learners have achieved an IELTS score above 6.5 or equivalent.

Experiment design

The present study employed two online measures and one offline measure to examine the participants' implicit and explicit knowledge. Firstly, a visual-world eye-tracking paradigm was adopted to look at the participants' anticipatory processing. Specifically, the participants are presented with a spoken sentence (e.g., *The little girl washed her hands with soap after playing.*) while viewing a visual image containing two pictures (see Figure 1). It is anticipated that if the participants are able to process the temporal information encoded in the sentence, they would look more to the left picture area (completed event area) than the right picture area (ongoing event area) after hearing the morphological form -ed. A total of 54 critical images and 54 fillers were created, and for each critical visual image, three target sentences (one simple past, one present perfect, and one present progressive) were recorded.

Figure 1. Example visual image used in the eye-tracking task.

Another sentence-matching task were used to look at participants' online sensitivity towards ungrammaticalities based on their reaction time. In this task, participants are asked to judge a pair of sentences which are sequentially presented for them and decide whether the second sentence is identical to the first one in form. The response latency (RT) for each pair is analysed by focusing on the possible differences in the mean RTs between the grammatical and ungrammatical pairs. A total of 48 critical items and 54 filler items were created. The set of 48 items comprised 16 items from each of the three grammatical constructions. Each test item contains two versions: the grammatical version and ungrammatical version. The ungrammatical version (the tense/aspect violation) was designed by having a mismatch between the temporal adverbial in the topic position and the following verb (1, 2, 3).

(1) Simple Past

Two weeks ago/* For the last two weeks, Mike went to the birthday party of his best friend.

(2) Present Perfect

For the last six months/*Six months ago, my two brothers have studied Italian at a school in Rome.

(3) Present Progressive

Right now/*Last night Ella, is dancing to her favourite song in her bedroom.

In combination of the two implicit measures, an acceptability judgement task (AJT) was also included to measure the participants' explicit knowledge. The test items are identical with the previous two tasks, and the participants need to judge the sentences regarding their grammatical acceptability using a scale from 1 (completely unacceptable) to 7 (completely acceptable). An oxford quick placement English test was also administered to the L2 learners.

Results

Eye-tracking results, the average proportion of looks were computed in every 50ms time window over a period of 1800ms following the onset of the critical verbs (see Figure 1. An example time-course graph for two groups). For the simple past items, L1 English and L1 Arabic groups showed similar preferential looks towards the completed event area at the beginning. Even though L1 Chinese group started looking more 550ms after the onset of the verb, the difference between their looks to the two areas was not significant (p=.091). For the present perfect, both L2 learners showed delayed predication effect compared to the L1 English group, and all three groups started looking more to the ongoing event picture over time when hearing the verbs in the present progressive sentences, which was confirmed by the time cluster analysis (p<.001).

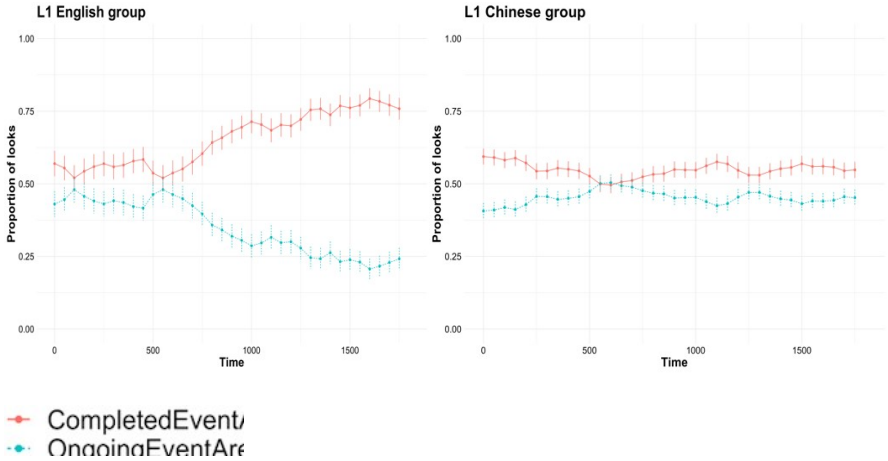

Figure 2. Mean proportion of looks to the two event areas for simple past items.

Sentence-matching results, for the simple past items, all three groups read the ungrammatical pairs slightly slower than the grammatical pairs, but the differences are not significant (L1 English group: b = 45.79, p=0.44; L1 Chinese group: b = 75.55, p=0.16; L1 Arabic group: b = 99, p=0.09). For the present perfect construction, L1 English group read the ungrammatical pairs faster than the grammatical pairs (b = -55.8, p=0.32), whereas the Chinese and Arabic groups read them slower, but no statistical significance were found (L1 Chinese group: b = 30.9, p=0.55; L1 Arabic group: b = 39.26, p=0.48). Interestingly, all three groups showed sensitivity towards the ungrammaticality in the present progressive sentences (L1 English group: b = 161.57, p=0.007; L1 Chinese group: b = 119.36, p=0.03; L1 Arabic group: b = 121.42, p=0.03).
AJT result, for the simple past items, all three groups rated ungrammatical sentences as less acceptable than grammatical sentences (L1 English group: b = -1.07, p<0.001; L1 Chinese group: b = -1.22, p<0.001; L1 Arabic group: b = -0.7, p<0.001). Similar results were found for present perfect items (L1 English: b = -1.46, p<0.001; L1 Chinese: b = -1.18, p<0.001; L1 Arabic: b = -0.59, p < 0.001), and for present progressive items (L1 English: b = -2.22, p<0.001; L1 Chinese: b = -2.01, p<0.001; L1 Arabic: b = -2.06, p<0.001). This suggests that all three groups were able to distinguish the incorrect use of tense-aspect.

Discussion

Both Chinese and Arabic learners displayed correct explicit knowledge about English tense and aspect in the AJT task. However, unlike the L1 English and L1 Arabic groups, the L1 Chinese group did not show any predicative processing towards simple past items in the eye-tracking task which could be explained by the reason that past tense is not grammaticalized in Chinese language. Both L2 learner groups were sensitive to the ungrammaticality of present progressive in the sentence-matching task, and the usage of the progressive marker in Mandarin and the imperfective form (express progressive meaning) in Arabic might have facilitated both L2 groups to show anticipatory processing in the eye-tracking task. For the present perfect, both L2 learner groups failed to show sensitivity to grammatical violations in the sentence-matching task and displayed reduced predication effect in the eye-tracking task, which could also be the L1 influence that the perfective form in Arabic conveys both past meaning and present perfect meaning, and the perfect marker in Mandarin is still not obligatory in some cases, and adverbials can be used to achieve the perfect meaning.

References

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