

The Effects of Prior Language Knowledge in Japanese Acquisition as a Foreign Language: The Case of the Japanese Noun Modifier *No*

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Abstract

The misuse of the Japanese noun modifier *no* has been observed over decades. Recent research investigating learners of Japanese as a foreign language with Chinese as their first language (L1) presented evidence of negative language transfer. This study aims to replicate the findings of a quantitative study conducted in Japan that investigated the misuse of *no* through assessing Chinese, Korean and English L1 learners of Japanese who reside in Sydney, Australia. These learners were tested in both instantaneous production and production with no time restriction. Given that the Chinese language contains a corresponding noun modifier 的 (*de*), the results showed a significant negative language transfer in the Chinese L1 group. This and other results will be discussed.

Keywords

foreign language acquisition; negative language transfer; noun modifier *no*; prior language knowledge

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Introduction

The ability to acquire new languages is affected by an individual's past language knowledge and experiences.¹ Speakers of Chinese, Korean and English as their first language constitute approximately 57% of Japanese language learners across the world.² Much literature has examined the effects of these three languages on the acquisition of Japanese, particularly from the perspective of language transfer.³

Language transfer is the effect of any knowledge of the learner's first language or other prior language knowledge (Lp) that has been 'transferred' or applied by the learner, either consciously or subconsciously, in the acquisition and/or in the construction process of the target language (TL).⁴ Of the two main types of language transfer, negative language transfer is the production of unusual or 'un-native-like' forms of the target language of which may resemble other already acquired language(s). For example, there are reported observations of the misuse of the Japanese term 生きる (*ikiru*; to live (the state of being alive)) for 住む (*sumu*; to live (to reside at a location)) by English first-language (L1) learners;⁵ for example, 'シドニーに生きている' (*Shidonii ni ikiteiru*; literally, 'I am alive in Sydney').⁶ This is a result of negative language transfer from English to Japanese, where the English 'to live' has a wider semantic field than the Japanese 'ikiru'.

This study aims to replicate a study conducted in Japan by Okuno,⁷ which investigated the misuse of the Japanese noun modifier *no* by Chinese, Korean and English L1 speakers. By examining a sample of Japanese learners residing in Sydney, Australia, this study confirms that negative language transfer is the process underlying this misuse.

This article will first review past research related to the Japanese noun modifier *no*, and outline the research methodology. The results will then be presented and examined in light of negative language transfer, followed by a discussion of the limitations of this study. Lastly, the study will be summarised in the concluding section with reference to some directions for future research.

1 Ellis, *The Study of Second Language Acquisition* (2nd ed.).

2 The Japan Foundation, *Survey Report on Japanese-language Education Abroad 2009*.

3 For example: Koyama, 'Rentai shūshoku kōzō'; Okuno, *Dai ni gengo shūtoku*; Peng, *Gaikokujin wo nayamaseru nihongo*; Sakoda, 'Dai ni gengo shūtoku'; Shirahata, 'Seijin dai ni gengo'; Shirahata, 'Rentai shūshoku kōzō'; Shirahata, 'Yōji no dai ni gengo'.

4 Odlin, *Language Transfer*.

5 Learners of Japanese with English as first language (English L1 learners); learners of Japanese with Chinese as first language (Chinese L1 learners); learners of Japanese with Korean as their first language (Korean L1 learners) and so forth.

6 Peng, *op. cit.*

7 Okuno, *op. cit.*

The Japanese Noun Modifier *No*

Evidence of negative language transfer has been found in studies concerning the misuse of the Japanese noun modifier *no* (の). The Japanese noun modifier *no* is a particle that indicates ownership, for example, 車の色 (*kuruma no iro*; the colour of the car), and its usage is restricted to cases following a noun, as shown in Table 1.

Table 1. Examples of the Uses of the Japanese *No*

	Noun-modifying phrase	True adjective phrase	Noun-adjective phrase	Verbal phrase
Japanese	車の色は赤です。 <i>Kuruma no iro wa aka desu.</i>	小さい犬は可愛いです。 <i>Chiisai inu wa kawaii desu.</i>	そのきれいな人は先生です。 <i>Sono kirei na hito wa sensei desu.</i>	寝ている猫はブーちゃんです。 <i>Neteiru neko wa buuchan desu.</i>
English translation	The colour of the car is red.	Small dogs are cute.	The beautiful person there is the teacher.	The cat which is sleeping is Bu-chan.

However, its misuse has often been observed.⁸ There are four main misuse categories in relation to this noun modifier, as shown in Table 2.⁹

Table 2. Four Categories of Misuse Related to the Noun Modifier *No*

	Noun-modifying phrase	True adjective phrase	Noun-adjective phrase	Verbal phrase
Observed misuse	車色は赤です。 <i>Kuruma iro wa aka desu.</i>	小さいの犬は可愛いです。 <i>Chiisai no inu wa kawaii desu.</i>	そのきれいの人は先生です。 <i>Sono kirei no hito wa sensei desu.</i>	寝ているの猫はブーちゃんです。 <i>Neteiru no neko wa buuchan desu.</i>
English translation	The colour the car is red.	Small dogs' are cute.	The beautiful's person there is the teacher.	The cat which is of sleeping is Bu-chan.

In the case of noun precedence, the *no* is observed to have been omitted, whereas in the case of the true adjective and verbal phrase, the particle *no* was observed to have

⁸ Clancy, 'The Acquisition of Japanese'; Okuno, *op. cit.*; Sakoda, *op. cit.*; Shirahata, 'Seijin dai ni gengo'; Shirahata, 'Rentai shūshoku kōzō'; Shirahata, 'Yōji no dai ni gengo.'

⁹ English translations have been provided to give a rough equivalent of the misuse.



been inappropriately added. Lastly, in the case of the noun-adjective, *no* has been observed to replace *na* (な).

The above misuses have been observed in conversation data amongst learners of Japanese from different first-language backgrounds, such as Korean, Chinese, English, Malaysian and Thai, as well as among children acquiring Japanese as their first language,¹⁰ which is suggested to be a developmental error.¹¹ Taking Japanese-language proficiency into consideration, a meta-analysis of conversation data revealed a bell-curve trend in the number of observed misuses. The number peaks around the intermediate proficiency level, begins to decline as learners reach the advanced level, and falls close to zero at the professional (superior) level of proficiency.¹² However, Sakoda reports an exception.¹³ Chinese L1 learners have demonstrated the misuse even at stages of advanced and professional proficiency. This is attributed to ‘interference’, or the negative language transfer of prior language knowledge of the Chinese character 的 (*de*), which carries an equivalent meaning to that of the Japanese noun modifier *no* but differs in usage (see Table 3).

Table 3. Examples of the Equivalent of the Noun Modifier *No* for Different Languages¹⁴

Language	Noun-modifying phrase	True adjective phrase	Noun-adjective phrase	Verbal phrase
Japanese	車の色 <i>Kuruma no iro</i>	小さい犬 <i>Chiisai inu</i>	きれいな人 <i>Kirei na hito</i>	寝ている猫 <i>Neteiru neko</i>
Chinese	车的颜色 <i>Che de yanse</i>	很小的狗 <i>Hen xiao de gou</i>	美丽的人 <i>Mei li de ren</i>	在睡的猫 <i>Zai shui de mao</i>
Korean	자동차(의)색상 <i>Ja-dong-cha (ui) saek-ssang</i>	작은 개 <i>Ja-geun gae</i>	예쁜 사람 <i>Ye-pppeun sa-ram</i>	자고있는 고양이 <i>Ja-go-in-neun go-yang-i</i>
English	The colour of the car	A small dog	A beautiful person	The cat which is sleeping OR the sleeping cat

10 Clancy, *op. cit.*; Koyama, *op. cit.*; Murasugi, *Noun Phrase in Japanese and English*; Murasugi and Hashimoto, ‘Yōji ni mirareru meishiku de no nishurui no kajō seisei’; Nagano, ‘Yōji no gengo hattatsu’; Okuno, *op. cit.*; Sakoda, *op. cit.*; Shirahata, ‘Seijin dai ni gengo’; Shirahata, ‘Rentai shūshoku kōzō’; Shirahata, ‘Yōji no dai ni gengo’; Yokoyama, ‘Yōji no rentai shūshoku.’

11 Developmental errors are ‘errors that are normal occurrences in the course of learning either a first or second language’ (Odlin, *op. cit.*, p. 166).

12 Koyama, *op. cit.*; Sakoda, *op. cit.*

13 Sakoda, *op. cit.*

14 Based on Okuno, *op. cit.*, p. 91.

The Chinese *de* is distinctive from Japanese, Korean and English equivalents in that, in addition to nouns, it can also follow adjectives and verbs. Thus, this conflicting usage between Chinese and Japanese may have delayed or even prevented the successful acquisition and/or production of the correct use of *no* by Chinese L1 learners. However, Sakoda's results were limited for the following reasons: the results were binary coded (yes or no misuse) and thus the quantitative information was discarded; the study was cross-sectional and therefore changes cannot be tracked over time; and as qualitative research offers limited scope for assessing the significance of data, the results lack convincing empirical evidence.

Inspired by Sakoda's research, two further studies were conducted by Okuno to confirm the effects of negative language transfer of the Chinese *de*.¹⁵ The first study was a qualitative longitudinal study where Oral Proficiency Interviews (OPIs) held with professionally trained and qualified OPI assessors were recorded and transcribed to determine Japanese language proficiency and observe misuse in learners' speech.¹⁶ All subjects (29 in total) were Japanese language learners on exchange in Japan who were L1 speakers of Chinese (11), English (6), Spanish (1), French (1), German (3) and Korean (7). OPIs were held before (pre-course) and after (post-course) university courses at two local universities in Japan. Subjects were ranked across proficiency levels (beginner, intermediate or advanced) and within each level (lower, middle or upper).

The results showed the following:

1. Subjects who were ranked as beginners pre-course (5 Chinese and 2 English L1 learners) did not demonstrate much use of *no*. After achieving intermediate proficiency, misuse was observed in five of these seven students in post-course OPIs, regardless of their first language.
2. Subjects who were ranked as intermediate pre-course (6 Chinese, 4 English, 1 French, 1 Spanish and 3 German) also demonstrated misuse, regardless of their first language. However, among subjects with advanced proficiency post-course, more Chinese L1 learners demonstrated misuse across the four grammatical categories of misuse identified above.

Similar to Korean and English L1 learners, French, Spanish and German L1 learners used the Japanese *no* equivalent only after nouns, and in the Spanish and French case, also after verbs. The above results demonstrated trajectories of change in misuse over

¹⁵ *ibid.*

¹⁶ *ibid.*, p. 74-93.



the learners' progress from beginner to advanced proficiency, confirming the results of Sakoda. Furthermore, they provided indication for negative language transfer of Chinese, at least for advanced learners.

To overcome the limitations of the qualitative nature of previous research, Okuno's second study used a quantitative approach.¹⁷ Firstly, OPIs were conducted to determine the Japanese-language proficiency level of 30 university students or graduates with Chinese, Korean and English L1 (10 per group). Negative language transfer was examined using the Instantaneous Response Judgement Test (IRJT) introduced by Okuno.¹⁸ The IRJT is a listening test comprising manipulated sentences that include both misuses and correct uses of *no*. It aims to assess the subject's language knowledge at a subliminal level through restricting response time and increasing the cognitive load.¹⁹ Cognitive load is imposed on the subjects by the need to simultaneously process both audio and visual information to judge the grammaticality of the sentences.

In addition to assessing subliminal knowledge, conscious knowledge was also assessed using a written version of the IRJT, namely, the self-paced Written Test (WT), where the auditory component of the test is removed and sufficient time is given for subjects to complete the test at their own pace. The WT aims to verify that subjects have acquired all relevant language knowledge and ability necessary to identify and correct misuse.

In comparing the performance of Korean and Chinese L1 learners, the Chinese L1 learners demonstrated significant difficulty in recognising misuse in the verbal phrase category of the IRJT. This was despite WT results indicating that both Chinese and Korean learners had the same level of correctly acquired conscious language knowledge of grammar. No difference was found amongst the performance of the Chinese and English L1 groups.

From this, and in line with past studies,²⁰ Okuno postulated that the misuse of *no* emerges as a developmental error at the intermediate level across language groups, similar to that found during first-language acquisition in Japanese children.²¹ Negative language transfer appears to affect Chinese L1 learners as proficiency advances, and only in the verb category. However, there are several limitations to this study. Firstly, empirical evidence from one study is insufficient to suggest negative language transfer as the cause of misuse. Furthermore, negative language transfer should be assessed in consideration

17 Okuno, *op. cit.*, p. 96-111.

18 *ibid.*, p. 99.

19 Cognitive load was suggested to increase the dependence on subliminal or better learnt knowledge (Lp) and increase the likelihood of negative language transfer (see Shirai, 'Conditions on Transfer').

20 Koyama, *op. cit.*; Shirahata, 'Seijin dai ni gengo'; Shirahata, 'Rentai shūshoku kōzō'; Shirahata, 'Yōji no dai ni gengo'.

21 Clancy, *op. cit.*; Murasugi, *op. cit.*; Murasugi and Hashimoto, *op. cit.*; Nagano, *op. cit.*

of the following: '1) intra-group homogeneity, 2) inter-group heterogeneity and 3) similarities between the native language [Lp] and interlanguage performance.'²² Okuno's study did not reveal inter-group heterogeneity between the Chinese and English groups, and did not demonstrate negative language transfer despite the fact that Chinese also utilises *de* following an adjective (see Table 3). Moreover, the effectiveness of the IRJT was not clear. Lastly, Okuno and Sakoda's studies were conducted in Japan with subjects who had lived in Japan for at least six months at the time of participation and had no other prior language knowledge apart from their mother-tongue and Japanese.

This study firstly aimed to investigate the misuse of *no* by Chinese, Korean and English L1 learners of Japanese to determine whether negative language transfer underlies the misuse and to assess whether the misuse is prominent in only the verb category by replicating Okuno's study using a sample from outside of Japan. Secondly, an additional group of Japanese L1 speakers was added to offer insights regarding the learners of Japanese and to identify potential inadequacies of the IRJT. The major difference between this study and Okuno's is that the participants in this study are studying at an Australian university using English. This means Chinese and Korean L1 learners in the new study are also functionally fluent in English. Lastly, the results from the current study will be contrasted with Okuno's, with special consideration for the English knowledge of the participants.

Based on the above aims, the research questions are as follows:

1. Does the advanced Chinese L1 learner group perform significantly more poorly in recognising misuse of *no* in the four categories (true adjective, noun-adjective, verbal and noun-modifying phrase), compared with the advanced Korean L1 and English L1 groups?
2. If there is observed poorer performance, is this due to the participants not having acquired and/or being unable to apply the relevant grammar knowledge to *no*?
3. Are these results different from the results of Okuno?
4. Are there differences in the performance of the three L1 groups when compared with the group of Japanese native speakers?

22 Ellis, *op. cit.*, p. 352.



If the Chinese L1 group does perform significantly worse than the Korean and English L1 groups on the IRJT without differences in the WT, then misuse may be attributable to negative language transfer. If comparatively poorer performances in Chinese L1 groups are only found in the verbal phrase, as suggested by Okuno's study, then negative language transfer may be specific only to errors in one category despite the rules relating to the use of *de* in Chinese. If no differences are found, this may indicate that English as a second language has impacted on Japanese-language acquisition and/or production.

Research Methodology

In contrast to the mainly qualitative approach of past research on this topic, this study employed a quantitative approach based on Okuno's second study. Ethics approval for this study was granted by the University of New South Wales Ethics Committee in November 2011.

Design

This study employed a 4x4 design. The independent variables are the subjects' first language (i.e. Chinese, Korean, English or Japanese) and the four categories of misuse of *no*: the omission of *no* after nouns (noun-modifying phrase), the addition of *no* after a true adjective phrase, the addition of *no* after verbs (verbal phrase) and substitution of *no* for *na* in noun-adjective phrases. The dependent variables are the number of correct uses and the number of misuses of *no* correctly judged in the IRJT and WT.

Participants

Twenty-eight current students and graduates of the University of New South Wales and University of Sydney either enrolled in, or having completed, advanced-level Japanese courses equivalent to Level N2 or above of the Japanese Language Proficiency Test²³ were recruited to participate in this study. The level of proficiency was confirmed by the Simple Performance-Oriented Test (SPOT).²⁴ The participants were Chinese L1 learners (9), Korean L1 learners (5), English L1 learners (9) and Japanese L1 learners (5).

23 For information on the Japanese Language Proficiency Test, see <http://www.jlpt.jp/e/about/index.html>.

24 See Ford-Niwa et al., 'Bunpō kōmoku chōtō nōryoku to onsei kankyō'; Hashimoto, 'Nihongo gakusei no SPOT tokuten'; Kobayashi et al., 'Nihongo nōryoku kan'i shiken (SPOT) no tokuten bunpūkeikō'.

Instruments

Three testing instruments and a questionnaire were employed to conduct this study. SPOT is a simple listening test that requires participants to fill in the missing *hiragana* character, as shown in Example 1.²⁵

Example 1.

たなか く
田中さんはもうすぐ来る()ずです。

Tanaka san wa mou sugu kuru () zu desu

Lit. “Tanaka Mr [particle] very soon come (shou)ld is”

SPOT is comprised of ten practice and 60 test questions. *Furigana* was supplied for all *kanji* characters.²⁶

A second listening test, the main instrument for measuring the recognition of *no*, is Okuno’s IRJT.²⁷ As discussed above, the IRJT aims to assess the subjects’ subliminal or better-learned Japanese-language knowledge through their ability to instantaneously respond to auditory cues in a restricted time frame.²⁸

The IRJT consists of two sections with 40 questions each, totalling 80 questions. Twenty-nine questions were manipulated to contain *no* misuse and 32 questions contained correct use. The 29 manipulated questions and the 32 correct-use questions were further divided into the four categories of true adjective, noun-adjective, verb and noun-modifying phrases, as shown in Table 4. The remaining 19 questions were fillers that contained misuse and correct use of other non-*no* grammar.

Table 4. The Number of Questions per Category in the IRJT

Categories Questions	True adjective phrase	Noun- adjective phrase	Verbal phrase	Noun- modifying phrase	Total
Misuse of <i>no</i>	8	5	11	5	29
Correct use of <i>no</i>	7	5	10	10	32

²⁵ SPOT was employed with approval of the developers.

²⁶ Version 3 of SPOT was used.

²⁷ Developed by Okuno, *op. cit.*

²⁸ For more information on IRJT, see *ibid.*, p. 100.



Below are examples of misuse and correct use in the above four categories.

Example 2. Misuse: True adjective phrase

かれ ほう ただ き
彼 の 方 が、正しいのような 気がしてきた。

Kare no hou ga, tadashii no you na ki ga shitekita.

↑

Answer: X

Example 3. Misuse: Noun-adjective phrase

れいせい こうどう あんしん
冷静 の 行動 をみて、安心 しました。

Reisei no kōdō o mite, anshin shimashita.

↑

Answer: な (na)

Example 4. Misuse: Verbal phrase

いまき ひと かのじょ
今来ているの人 は 彼女 ではありません。

Ima kiteiru no hito wa kanojo dewa arimasen.

↑

Answer: X

Example 5. Misuse: Noun-modifying phrase

にほん がいこくじんとも だち
日本にきて、外国人友達 をたくさんつくりました。

Nihon ni kite, gaikokujin tomodachi o takusan tsukurimashita.

↑

Answer: の (no)

Example 6. Correct use: True adjective phrase

がいこく あたら しごと おも
外国で、新しい仕事をみつけようと思います。

Gaikoku de, atarashii shigoto o mitsukeyō to omoimasu.

Answer: Correct

Example 7. Correct use: Noun-adjective phrase

ちゅうごく しょうがつ とくべつ た もの
中国では、これは 正月の 特別な食べ物 です。

Chuugoku de wa, kore wa shōgatsu no tokubetsu na tabemono desu.

Answer: Correct

Example 8. Correct use: Verbal phrase

えき でんしゃ ま ひと おおぜい
駅のホームで 電車を待っている人 が 大勢 います。

Eki no hōmu de densha o matteiru hito ga ōzei imasu.

Answer: Correct

Example 9. Correct use: Noun-modifying phrase

ほん はは か
この本は、母のために買いました。

Kono hon wa, haha no tame ni kaimashita.

Answer: Correct

The target section requiring judgement is not printed on the test page, as shown in Example 10, to increase the dependence on subliminal knowledge.

Example 10.

かれ ほう き
彼の方 が、_____ 気がしてきました。()

Kare no hou ga, _____ ki ga shitekita.

The audio recording was produced by recording a native Japanese speaker reading each question aloud at the average speed of speech to imitate natural conversations amongst native Japanese speakers. The recordings were edited to contain a half-second pause between the question number and the question, three seconds between each question and five seconds after ten questions for page-flipping time, as in the original study. Identical to the original study, a ten-second segment of Pachelbel's *Canon* was inserted midway through each section to allow for a short rest.

The section order was counterbalanced; that is, half of the participants received section one first and half received section two first, as in the original study. Participants were instructed to mark grammatically incorrect sentences with × and correct sentences with ○. One point was given per correct answer.



The last testing instrument was the WT. The participants were given 80 questions on paper without any audio cues, relying only on visual cues to increase the use of conscious language knowledge for grammar judgements. The questions were presented without missing parts, as shown below.

Example 11.

かれ ほう ただ き
彼の方が、正しいのような 気がしてきた。()

Kare no hou ga, tadashii no you na ki ga shitekita.

Again, participants were instructed to mark grammatically incorrect sentences with × and correct sentences with ○. Questions marked as incorrect also required participants to make a correction. One point was given for each correctly answered question with the appropriate corrections made when necessary, as shown in Example 12.

Example 12.

かれ ほう ただ き
彼の方 が、正しいのような 気がしてきた。(×)

Kare no hou ga, tadashii no you na ki ga shitekita.

The questionnaire was created to gather subjects' language background, their history of Japanese language studies, and the frequency and level of use of their acquired languages. Written permission was obtained from participants via a signed consent form.

Procedure

Data collection was conducted in the following order: 1) consent form; 2) SPOT; 3) IRJT; 4) WT; 5) questionnaire.

Firstly, participants read and signed the consent form to participate in the study and were subsequently assigned the SPOT. Instructions were provided both in Japanese and English on the paper, and explained verbally either in English or Japanese according to their preference. Practice questions were played to allow participants to adjust to the audio and the format of the test. The test was conducted with no pauses once the participants understood the instructions and test procedures. The SPOT test took six minutes.

The IRJT was assigned after a short break following the completion of the SPOT. This test was administered in a similar manner to the above, using instructions written in

Japanese and English and verbal explanations in either English or Japanese. This test took approximately 15 minutes. After the completion of the IRJT, the WT was assigned. English and Japanese written instructions were provided on paper, and verbal explanations were also provided in either English or Japanese, along with explanations of the examples. The WT is a self-paced test, and participants took between five minutes and one hour to complete the test. Lastly, the questionnaire was completed at the conclusion of the WT.

Results

Data Analysis

The results obtained were analysed using the statistical package SPSS 20. As the number of questions varied per category, a score out of five was calculated before analysis as a comparison benchmark.

Multiple t-tests were used as the method of analysis due to the small sample size, in conjunction with one-way ANOVA F-tests to control for error rates. Only results with a controlled error rate of $p < .05$ were analysed using t-tests. The results with the controlled error rate were the verbal category misuse recognition score ($F(1,20) = 7.28, p < .005$), and the noun-modifying phrase misuse recognition in the IRJT ($F(1,24) = 3.10, p < .05$).

Furthermore, t-tests were performed for within-group comparisons of misuse and correct use in each category between the IRJT and the WT, and for comparisons of misuse and correct-use recognition in the four categories of the IRJT and the WT.

Between-Group Comparisons

The analysis found significant differences in the correct recognition of *no* misuse in the verbal phrase category in the IRJT between the Chinese and Korean L1 groups ($t(12) = -2.36, p < .05$), Chinese and English L1 groups ($t(16) = -2.70, p < .05$) and the Chinese and Japanese L1 groups ($t(12) = -5.46, p < .001$), whereby the Chinese L1 group performed significantly worse. The English group performed significantly worse than the Japanese ($t(12) = -2.25, p < .05$). There were no significant differences in the case of Korean and English, and Korean and Japanese group comparisons (see Figure 1).

There were also significant differences in noun-modifying phrase category misuse recognition performance in the IRJT, whereby the Chinese group ($t(12) = -3.00, p < .05$) and

the English group ($t(12) = -3.10, p < .01$) performed significantly worse than the Japanese group, whilst the Korean group did not perform statistically differently.²⁹

Figure 1. The mean scores of correctly recognised misuse of *no* per category for the four L1 groups in the IRJT

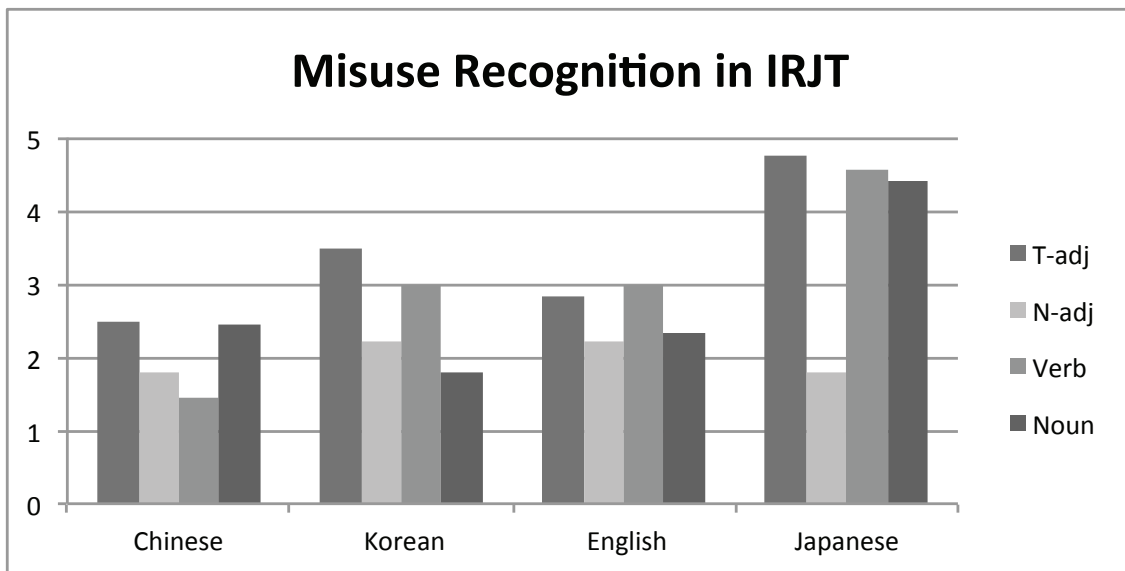
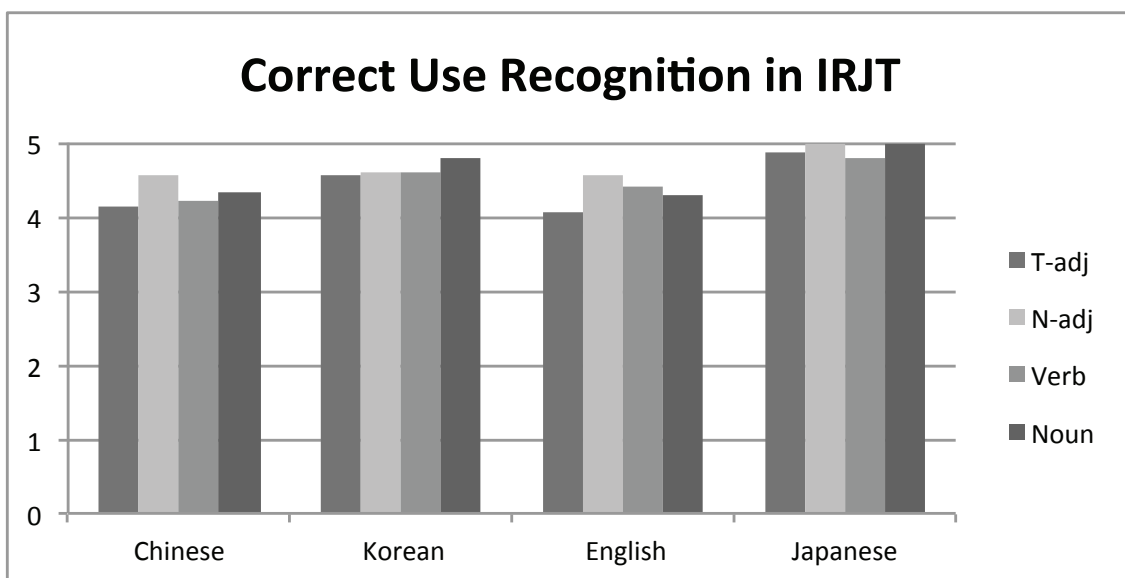


Figure 2. The mean scores of correctly recognised correct use of *no* per category for the four L1 groups in the IRJT



²⁹ All standard deviations are as shown in Tables 5-8, overleaf.

Figure 3. The mean scores of correctly recognised misuse of *no* per category for the four L1 groups in the WT

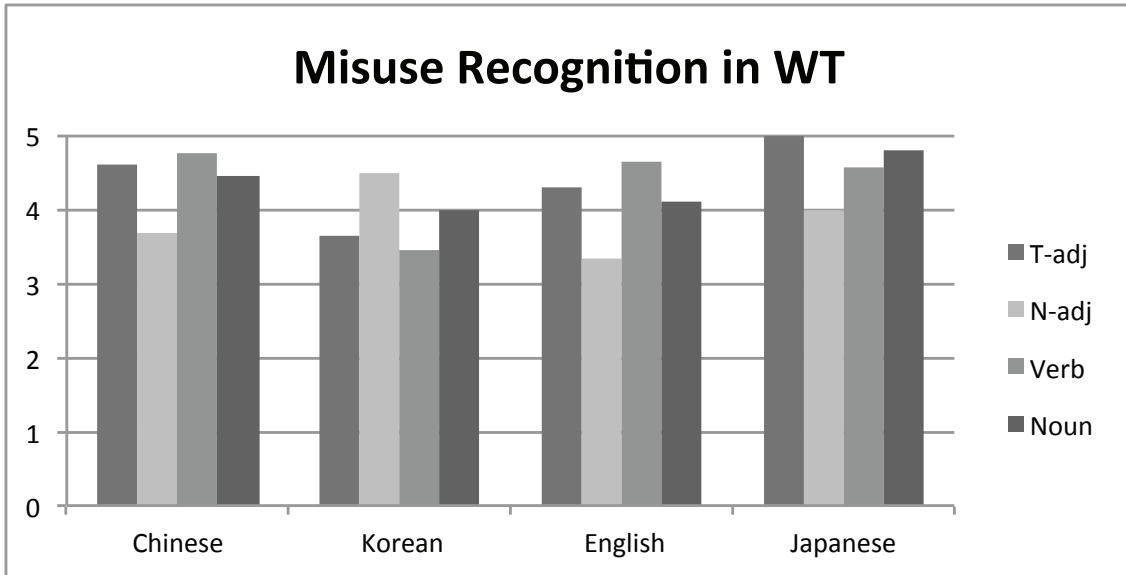


Figure 4. The mean scores of correctly recognised correct use per category for the four L1 groups in the WT

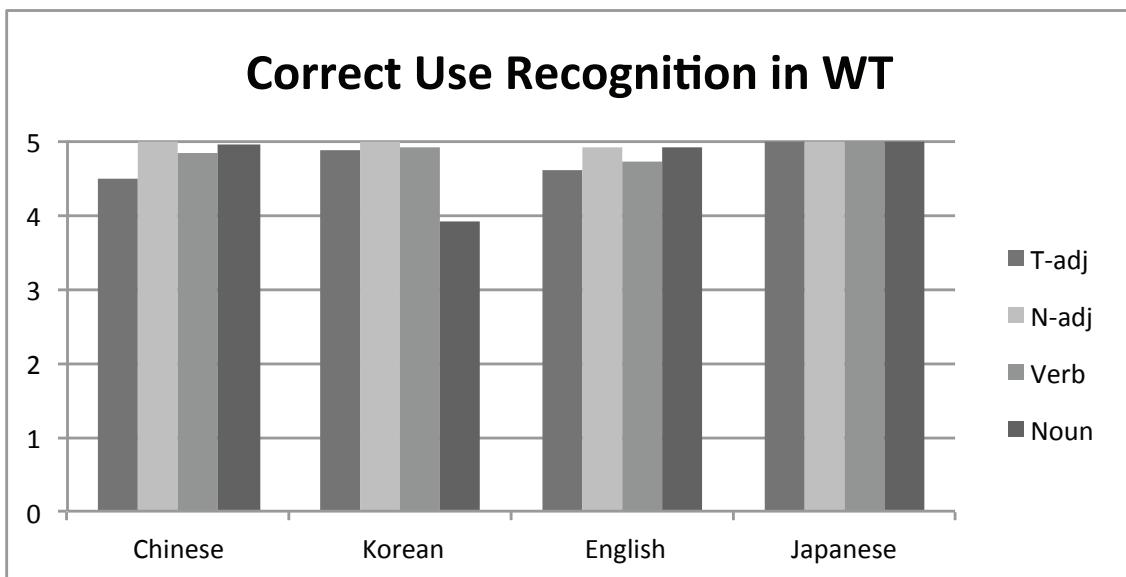




Table 5. Mean score and standard deviation per condition for misuse recognition in the IRJT

M (SD)	True adjective	Noun-adjective	Verb	Noun
Chinese	2.50 (1.53)	1.78 (1.64)	1.46 (1.01)	2.44 (1.81)
Korean	3.50 (1.91)	2.20 (1.10)	3.00 (1.42)	1.80 (1.48)
English	2.85 (1.40)	2.22 (0.67)	2.98 (1.35)	2.33 (1.41)
Japanese	4.75 (0.56)	1.80 (0.84)	4.55 (1.02)	4.40 (0.55)

Table 6. Mean score and standard deviation per condition for correct use recognition in the IRJT

M (SD)	True adjective	Noun-adjective	Verb	Noun
Chinese	4.13 (0.48)	4.56 (0.53)	4.22 (0.83)	4.33 (0.50)
Korean	4.57 (0.39)	4.60 (0.55)	4.60 (0.65)	4.80 (0.27)
English	4.05 (0.80)	4.56 (0.53)	4.39 (0.74)	4.28 (0.71)
Japanese	4.86 (0.32)	5.00 (0.00)	4.80 (0.45)	5.00 (0.00)

Table 7. Mean score and standard deviation per condition for misuse recognition in the WT

M (SD)	True adjective	Noun-adjective	Verb	Noun
Chinese	4.58 (0.70)	3.67 (0.87)	4.75 (0.33)	4.44 (0.73)
Korean	3.63 (2.09)	4.50 (0.58)	3.45 (1.97)	4.00 (1.41)
English	4.31 (0.79)	3.33 (1.22)	4.65 (0.50)	4.11 (1.27)
Japanese	5.00 (0.00)	4.00 (0.00)	4.55 (0.32)	4.80 (0.45)

Table 8. Mean score and standard deviation per condition for correct use recognition in the WT

M (SD)	True adjective	Noun-adjective	Verb	Noun
Chinese	4.84 (0.31)	5.00 (0.00)	4.83 (0.35)	4.94 (0.17)
Korean	4.86 (0.32)	5.00 (0.00)	4.90 (0.22)	3.90 (2.19)
English	4.60 (0.52)	4.89 (0.33)	4.72 (0.36)	4.89 (0.22)
Japanese	5.00 (0.00)	5.00 (0.00)	5.00 (0.00)	5.00 (0.00)

Within-Group Comparisons

The Chinese group ($t(8) = -8.89, p < .001$) and the English group ($t(8) = -4.32, p < .005$) performed significantly worse in verbal phrase category misuse recognition in the IRJT than the WT. In noun-modifying phrase category misuse recognition, Chinese ($t(8) = -3.80, p < .005$) and English ($t(8) = -2.35, p < .05$) L1 groups performed significantly worse in the IRJT than the WT. Only noun-adjective phrase category misuse recognition was significantly poorer in the Japanese group ($t(4) = -5.88, p < .005$) in the IRJT than the WT (see Figures 1 and 3). No difference was found for correct-use recognition in the IRJT and WT (see Figures 2 and 4).

Comparing recognition of misuse and correct use in the IRJT, the Chinese group performed significantly poorer in misuse recognition than correct-use recognition in the verb ($t(8) = -7.07, p < .001$) and noun ($t(8) = -2.98, p < .05$) categories. Similarly, the English group performed significantly worse in misuse recognition in the verb ($t(8) = -3.32, p < .05$) and noun categories ($t(8) = -4.45, p < .005$). Lastly, significantly poorer performances were found for the Japanese group in the noun-adjective category of misuse recognition in the IRJT ($t(4) = -8.55, p < .005$) (see Figures 1 and 2). No differences were found in misuse and correct-use recognition in the WT (see Figures 3 and 4).

Discussion

This study aimed to provide a better understanding of the misuse of *no* and the underlying cause by replicating Okuno's quantitative study. Investigations were conducted by examining Chinese, Korean and English L1 learners of Japanese in Sydney, Australia. A Japanese L1 group was added to provide new insights into the study.

The main findings of the current study are summarised as follows:

1. Poorer performances were found in the Chinese L1 learner group relative to their Korean and English L1 counterparts in verb-category misuse recognition in the IRJT. However, Chinese L1 learners performed better in verb-category correct-use recognition in the IRJT and misuse recognition in the WT than in misuse recognition in the verb category in the IRJT.
2. Chinese and English L1 learners performed relatively worse than Japanese L1 speakers only in noun-modifying phrase misuse recognition in the IRJT. There was no difference found in correct-use recognition in the IRJT and the WT.



3. The Japanese L1 group performed significantly worse in misuse recognition in the noun-adjective category than in correct-use recognition in the IRJT. This performance was also better than the misuse recognition in the WT.

The poorer performances of Chinese L1 learners relative to their Korean and English L1 counterparts in verb-category misuse recognition in the IRJT is not attributable to confounding variables, for example, having not (correctly) acquired relevant grammar knowledge, or not having other general skills that may enable recognition of misuse. This is shown by their relatively better performance in verbal-phrase misuse recognition in the WT and correct-use recognition in the IRJT, which demonstrates capabilities similar to those of the Korean and English L1 learners. These results were in line with Okuno's study, except that the English L1 learners also performed better than the Chinese L1 group. The differences may be an indicator for negative language transfer of prior knowledge of *de*. As indicated by Okuno (see Table 3), negative language transfer associated with the Chinese *de* is applicable not only in the verbal phrase but also the adjectival phrase category.

Based on this, negative language transfer should also appear in the adjective categories; however, it was neither found in the original nor the current study. In fact, in contrast with the verbal phrases, *de* is not compulsory in adjectival phrases in Chinese, a fact which was not specified by Okuno. While on one hand, adjectival phrases such as 美丽的人 (*mei li de ren*; a beautiful person) or 很小的狗 (*hen xiao de gou*; a very small dog) may utilise *de*; others do not, for example, 小狗 (*xiao gou*; a small dog).³⁰ In other words, knowledge of *de* may not have been 'transferred' in adjective categories in a similar fashion to that of the verb category. This can explain why misuse remained only in the verb category even after the Chinese L1 learners had reached an advanced level of proficiency.

Although the results suggest negative language transfer at work, there are alternative explanations that may also account for the relatively poor performance of the Chinese L1 learners. Firstly, as mentioned earlier, misuse of *no* is common in learners at the intermediate proficiency level, irrespective of their first language. However, as learners advance to higher proficiency levels, the observed misuse declines. The intermediate proficiency level may be considered as the developmental stage, where learners are in the process of acquiring the grammar of *no*, and the decline of misuse to almost zero at higher proficiency levels marks the completion of acquisition. Conflicting features between the native language (Lp) and the target language (TL) may potentially hinder development.³¹ Thus, relative to other learners without the conflicting Lp-TL feature,

30 Other adjectival phrase examples without *de* include 黑发 (*hei fa*; black hair), 懒人 (*lan ren*; a lazy person), 好书 (*hao shu*; good book).

31 Yamaoka, *Dai ni gengo shūtoku kenkyū*.

the learners with a conflicting Lp-TL feature may not necessarily complete the acquisition at the equivalent proficiency level. The Chinese L1 learners may have been an example of this. If this is true, then inter-group heterogeneity³² as a proposed criterion essential to the assessment of negative language transfer should be revised.

Secondly, due to the nature of the IRJT and WT, different cognitive processes are required to complete these tests. The WT, which offers sufficient thinking time, relies on conscious knowledge and allows for logical thinking. On the other hand, the IRJT demands instantaneous responses, and has a high dependency on automatism or automatised knowledge. Automatisation refers to rapid and attention-free processing, which is achieved after much practice.³³ The poorer performance in verb category misuse recognition in the Chinese L1 group, which was found in the IRJT but not in the WT, may suggest that the acquired grammatical knowledge of *no* had not yet been automatised. As a result, its application requires attention which is not achievable in the limited time frame offered in the IRJT. Furthermore, the conflicting Lp-TL feature in only the verb category may have delayed the process of automatism, thus poorer performance has only been observed in the one category.

In short, although at a glance the results suggest negative language transfer, as the foundation of the assessment is not strong, other factors may have potentially impacted the results. Thus, this study can only argue for a higher possibility of negative language transfer as the underlying phenomenon responsible for misuse. Further research is needed to clarify the causal relationship between knowledge of the Chinese *de* and the observed poorer performance of the Chinese L1 learners in recognising misuse in the verbal-phrase category.

Interestingly, if it is negative language transfer at work, then the consistency found in results from the samples of Chinese L1 Japanese-learning populations in Japan and Australia suggest that English as a second language had no effect on their performance. This is possibly because of the closer perceived language distance between Chinese and Japanese than English and Japanese. The closer the Lp knowledge is perceived to be to that of the TL, the more likely it is to be transferred.³⁴ As a result, the less-close English Lp may not have affected the Chinese L1 learners' judgements of misuse. However, the current study did not measure the perceived language distance in participants, thus further research is necessary to confirm this.

32 Ellis, *op. cit.*

33 Anderson and Lebiere, *The Atomic Components of Thought*, p. 5.

34 Ahukana et al., 'Inter- and Intra-lingual Interference Effects in Learning a Third Language'; Ellis, *op. cit.*; Ringbom, *The Role of the First Language in Foreign Language Learning*.



Overall, the Japanese L1 group demonstrated better performance in comparison to the three groups of learners of Japanese. In particular, statistically better performances were found in verb and noun-modifying phrase misuse recognition in the IRJT. However, no differences were found between the performances of the Japanese L1 group and the Korean L1 group. This offers a small indication of the performance differences between the three L1 groups of learners, whereby Korean L1 learners demonstrate more outstanding language capabilities than others at the advanced level of proficiency.

The Japanese L1 group exhibited interesting results in the noun-adjective category. They performed significantly worse in misuse recognition in the IRJT than in correct-use recognition, as well as when compared to misuse recognition in the WT. It is also noteworthy that the Japanese L1 group's performance in the noun-adjective category was worse than those of the English L1 and Korean L1 groups in the IRJT on misuse recognition, although the differences were not statistically significant. If correctly used, noun adjectives are followed by *na* in modifying nouns, not *no*. Although the two differ only by a vowel, native Japanese speakers are capable of differentiating the sounds.³⁵

However, Japanese native speakers demonstrated an apparent difficulty in using the *na* and the *no* correctly, possibly due to dual functions of certain noun-adjectives.³⁶ For example, although 特別な (*tokubetsu na*; special) is a noun-adjective and takes up the *na*, it can also function as a noun; that is, 特別の (*tokubetsu no*) where *no* is attached. Furthermore, 元気な (*genki na*; physically healthy) and its antonym 病気の (*byōki no*; being ill) contain a semantic contrast, where one is a noun-adjective and the other a noun, respectively. Noun-adjectives, as the label suggests, are adjectives that can function like nouns and adjectives. Thus, the necessity of determining whether the vocabulary is a noun-adjective or noun, and if a noun-adjective, whether it takes *na* or *no*, can complicate matters.

Having a more complete knowledge of vocabulary could have caused some confusion in the Japanese L1 group. While learners of Japanese may have access to only the adjective function of a noun-adjective, for example, 特別な (*tokubetsu na*), the Japanese L1 group would also have access to the noun function of the same word. Furthermore, Japanese L1 speakers were required to make this extra decision in the time the audio produces the *no*, that is, in approximately 0.074 seconds.³⁷ Although Japanese L1 speakers are noted to have difficulty in distinguishing correct and incorrect uses of *na* and *no* in the case of noun-adjectives,³⁸ no empirical investigation has been conducted on this so far. Thus, these results provide some empirical evidence for this phenomenon.

35 For example, they have no difficulty in differentiating なる (*naru*; to become) and のる (*noru*; to get into a vehicle or form of transport).

36 Kinoshita-Thomson, personal communication.

37 Calculated by dividing the number of phonemes in a question by the audio length.

38 Kinoshita-Thomson, personal communication.

Limitations

There are a number of limitations to this study. First, the small sample size is insufficient for quantitative analysis and for making reliable inferences. Additionally, the recruitment criteria recruited subjects possessing the language knowledge of interest, however, it did not rule out those who may have other additional language knowledge that may affect the results; for example, one English L1 participant reported knowing some Korean and a little Chinese on top of Japanese and English. This study did not control for participants' fourth or further language knowledge. Additional Lps may have potentially impacted on the results.³⁹ Furthermore, negative language transfer detection and attribution becomes more difficult in the context of multilingual participants.⁴⁰ Thus, strategies to account for additional languages would be necessary in future studies.

Secondly, although this was a good initial attempt at empirically investigating *no* misuse, the validity and reliability of the main testing instrument, the IRJT, which was employed to measure the negative language transfer, has yet to be verified. One main limitation of this test is that it does not allow for the pinpointing of errors. Simply marking a sentence as incorrect does not confirm that participants are correctly recognising misuses of *no* as incorrect; thus, inferences that can be made from the results are restricted. In addition, difficulty in recognising misuse (speech recognition) does not necessarily indicate that the participants produce the error themselves (speech production).

Conclusion

As there were no apparent problems with the understanding and application of the relevant grammar knowledge about the Japanese noun modifier *no* (Research Question 2), the statistically significant misuse recognition difficulty for the verb category observed in the advanced Chinese L1 participants, in comparison to their Korean and English counterparts, suggests that negative language transfer underlies the misuse (Research Question 1). These results were similar to those of Okuno's study, with the exception that in this study, the English L1 group also performed significantly better than the Chinese in the verbal category of misuse recognition in the IRJT (Research Question 3). Lastly, although the Japanese L1 group provided minimal insight into the performance of the other L1 groups, it provided some empirical evidence relating to the confusion of *na* and *no* attached to noun-adjectives in Japanese native speakers (Research Question 4).

³⁹ Ringbom, *op. cit.*

⁴⁰ Odlin, *op. cit.*



Future research may take into consideration the limitations of the IRJT and employ additional components to overcome them, such as requiring participants to provide verbal justification for judging sentences as grammatically incorrect between test questions during the test. An alternative may be measuring and comparing the reaction time (RT) needed to judge the misuse and correct use of *no*. RT has been employed as a fairly accurate measurement of cognitive processes in a range of publications.⁴¹ Negative language transfer can also be more accurately examined if the sentences are presented on screen and the *no* alone is underlined for determination of grammaticality. Any difference in the RT found between the Chinese and other L1 groups in the verb category will offer more concrete empirical evidence. This would in turn reduce the cognitive load on Chinese L1 learners in listening comprehension tests. It may also be necessary to collect conversation data to confirm misuse production by participants. Future research should also incorporate investigations to differentiate negative language transfer from developmental errors; that is, errors made due to incomplete acquisition of the correct use of *no* in the verbal-phrase category for Chinese L1 speakers.

As there are millions of Japanese learners across the world, it is quite important to have a thorough understanding of the effects of prior language on the learning of Japanese as a foreign language. In addressing the matter of negative language transfer, teachers of foreign languages can employ strategies to overcome the effects and promote more efficient learning. Furthermore, results from Japanese second-language acquisition studies may provide insights into phenomena that can be generalised to the acquisition of other second languages.

41 Coyne et al., 'The Effects of Viewing Physical and Relational Aggression in the Media'; Koch et al., 'Chunking in Task Sequence Modulates Task Inhibition'; MacDonald et al., 'Performance Variability is Related to Change in Cognition.'

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