

# Modal Auxiliary Verbs in Japanese EFL Learners' Conversation: A Corpus-based Study

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This research examines Japanese non-native speakers' (JNNS) modal auxiliary verb use from two different perspectives: frequency of use and preferences for modalities. Additionally, error analysis is carried out to identify errors in modal use common among JNNSs. Their modal use is compared to that of English native speakers within a spoken dialogue corpus which is part of the International Corpus Network of Asian Learners' English. Research findings show at a statistically significant level that when compared to native speakers, JNNSs underuse past forms of modals and infrequently convey epistemic modality, indicating the possibility that JNNSs fail to express their opinions or thoughts indirectly when needed or to convey politeness appropriately. Error analysis identifies the following three types of common errors: (1) the use of incorrect tenses of modal verb phrases, (2) the use of inflected verb forms after modals, and (3) the non-use of main verbs after modals. The first type of error is largely because JNNSs do not master how to express past meanings of modals. The second and third types of errors seem to be due to first language transfer into second language acquisition and JNNSs' overgeneralization of the subject-verb agreement rules to modals respectively.

**Keywords:** Corpus-based Analysis, Error Analysis, ICNALE, Interlanguage Analysis, Japanese Learners of English, Modal Auxiliary Verbs

## 1. Introduction

In Japan, speaking is receiving the most attention among the four basic language skills, that is to say, listening, speaking, reading, and writing. The Ministry of Education, Culture, Sports, Science and Technology (MEXT) will be implementing a new set of Course of Study Guidelines for junior/senior high schools from 2021 and 2022 respectively. Both guidelines specifically state an intention to put a primary focus on improving students' communication ability (MEXT, 2017, 2018).

To help students to be able to speak English, linguistic features to be taught should be those that have an important role in spoken contexts, motivating the current study to focus on nine central modal auxiliary verbs, namely, "can" "may," "will," "shall," "must," and their corresponding past tense forms. Using these items appropriately allows speakers to vary the degree of their commitment to or that of certainty about propositions (Celce-Murcia & Larsen-Freeman, 2013). Unlike writing situations where authors can spend time considering what they want to convey as much as they want, participants in conversation are required to quickly react to what interlocutors said (Chafe & Danielwicz, 1987). It is therefore highly likely that hearers cannot respond with total confidence. In this case, speakers may tone down their arguments by using modal verbs. Furthermore, modal verbs can add politeness to statements (Celce-Murcia & Larsen-Freeman, 2013). This function is also important in everyday conversation where people may talk with those who are in more socially powerful positions. These functions are worth learning for learners in countries that intend to cultivate learners' communication ability such as in Japan; therefore, this research investigated how Japanese non-native speakers of

English (hereafter, JNNS) used the nine modal verbs in conversation with the aim of helping language teachers or teaching materials to teach the modal verbs more effectively.

## **2. Literature Review**

### **2.1. Contrastive Interlanguage Analysis**

Comparing language use between native speakers and non-native speakers, which is now referred to as contrastive interlanguage analysis (CIA; Granger, 1996), is capable of indicating learners' over-/under-use of the linguistic features investigated when compared to native speakers, making it possible for language teachers to get a clue as to how to bring learners' language use close to native-like use. As suggested by Granger (1996), this research made a comparison between learner language and native speaker language to investigate JNNSs' interlanguage regarding the modal verbs. In other words, this research primarily sought to identify to what extent JNNSs' modal use in conversation deviated from that of English native speakers (hereafter, NS).

### **2.2. Corpus-based Studies on Learners' Modal Use in Spoken Contexts**

Many corpus linguists to date have investigated learners' modal use with the aim of helping designers of textbooks and language teachers impart modal use to learners effectively. The focus of such studies was primarily on learners' modal use in writing (e.g., McEnery & Kifle, 2002); however, modal verbs should be also investigated within spoken contexts as they are more sensitive to spoken contexts rather than written contexts (Kennedy, 2002). This is partly because modal verbs have "the role of modality, especially in face-to-face spoken interaction to hedge and soften utterances and express subtle differences in degrees of certainty, attitudes, value judgements and the truth conditions of propositional content" (Kennedy, 2002, p. 87-88). This fact has possibly motivated researchers to make a comparison of modal use between JNNSs and NSs by using spoken data; however, it does not seem that those studies were comprehensive enough. Specifically, their scope of analysis was limited to the frequency of use of modals (Shirato & Stapleton, 2007) or to the ways of employing request strategies by using modals (Konakahara, 2011), indicating the necessity of examining JNNSs' modal use from various perspectives to obtain a clearer picture of their modal use. In this research, JNNSs' modal use was investigated by comparing it with that of NSs from two different perspectives: preferences for each modal and those for modalities that the modals can convey. In addition, error analysis was carried out in order to identify errors common among JNNSs and provide language teachers with insights into what they need to be careful not to cause those errors. The following three research questions were addressed:

1. Which modals do JNNSs prefer/avoid using in conversation when compared to NSs?
2. Which modalities do JNNSs prefer/avoid conveying in conversation when compared to NSs?
3. What primarily contributes to JNNSs' errors in modal use?

## **3. Methodology**

When conducting CIA research, it is indispensable to confirm whether or not the corpus examined is strictly controlled because language situations (e.g., spontaneous conversation or informal interview) or task settings (e.g., timed or untimed) are among the influential factors on corpus participants' production (Granger, 1996; Ishikawa, 2019). In other words, using a corpus developed without careful consideration of those factors may end up making the interpretation of data skewed

(Ishikawa, 2019). The spoken dialogue module (Ishikawa, 2019), which is part of the International Corpus Network of Asian Learners' English (ICNALE), was adopted for the current study. This module consists of speech data produced by Asian learners of English as well as NSs. To secure data comparability, the corpus developer engaged all the participants in the same tasks, gathered spoken data from interviews between interviewees and trained interviewers, and made the interview length about 40 minutes.

The ICNALE corpus is sometimes modified by the corpus developer without prior notice. Specifically, several data have been deleted, added, or replaced with new data. The current information of this module is as below (as of January 2020).

**Table 1.** Corpus Information

Group	Number of Participants	Number of Tokens
NS	20	45,187
B2+	12	21,367
B1-2	28	42,560
B1-1	29	42,771
A2	31	42,486

In this corpus, learners' levels of English proficiency are stratified by the Common European Framework of Reference for Languages (CEFR)-linked proficiency bands (B2+, B1-2, B1-1, A2); we can call up language produced by learners at a particular proficiency level on which the ICNALE corpus users want to focus. This research thus took learners' proficiency levels into consideration in order to help language teachers to be able to teach modal verbs effectively according to their students' levels of English proficiency.

## 4. Results

Before looking at analysis results, let us make it clear how this research dealt with language patterns unique to spoken contexts.

- Repetition of the same modals:  
e.g., “- I can --- I can do my favorite thing” (SD\_JPN\_087).

When the same modals were repeated more than once as in the example above, they were counted only once.

- Repair of sentences:  
e.g., “Then, he can go to --- he could go to the swim with some friends” (SD\_JPN\_003).

When utterances were repaired by speakers, only the last modal verbs produced as well as preceding main verbs were analyzed (i.e., in the excerpt, “could”).

### 4.1. Frequency Analysis

Table 2 summarizes how many times each of the nine modals was produced by JNNSs and NSs respectively. In the leftmost columns, the modal verbs are arranged in descending order of frequency of use within the NS group. Numbers in parenthesis refer to frequency rankings within the group.

**Table 2.** Frequency of Occurrence of Each Modal

Modal	Group				
	NS	B2+	B1-2	B1-1	A2
Can	276	185(1)	336(1)	404(1)	349(1)
Would	222	8(5)	9(6)	15(5)	10(6)
Will	116	30(4)	24(4)	37(3)	43(4)
Could	99	35(3)	31(3)	28(4)	45(3)
Should	70	48(2)	64(2)	88(2)	86(2)
Might	25	3(6)	0(9)	3(8)	0(9)
May	12	2(7)	7(7)	5(7)	9(7)
Must	2	2(7)	15(5)	8(6)	18(5)
Shall	0	0(9)	2(8)	0(9)	1(8)
Total	822	313	488	588	561

What is common among all the groups was that the modal “can” was used most frequently. It can be worth reporting that “would,” which was one of the high-frequency modals in NSs’ speeches, was infrequently produced by all the JNNSs groups. To investigate whether or not JNNSs had over-/under-used certain modals relative to NSs, a log-likelihood test was performed on the data by using Rayson’s (2016) log-likelihood and effect size calculator (freely available from <http://ucrel.lancs.ac.uk/llwizard.html>).

**Table 3.** Results of a Log-likelihood Test

Modal	NS vs.							
	B2+		B1-2		B1-1		A2	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Can	+13.1*	2.0	+10*	-1.4	+31.8*	20.4	+13.6*	2.3
Would	-120.6*	109.5	-231.6*	220.2	-205.5*	194.1	-226.3*	215
Will	-9.7*	-1.4	-60.4*	49.0	-38.6*	27.2	-30.5*	19.1
Could	-2.3	-8.8	-33.4*	22.1	-38.3*	26.9	-17.6*	6.2
Should	+3.8	-7.3	-0.03	-11.4	+3.2	-8.2	+2.8	-8.6
Might	-7.1*	-4.0	-33.2*	21.8	-18.6*	7.2	-33.1*	21.8
May	-2.4	-8.8	-1.1	-10.3	-2.6	-8.8	-0.3	-11.1
Must	+0.6	-10.6	+12.1*	0.7	+4.2*	-7.2	+15.7*	4.4
Shall	0	-11.1	+2.9	-8.5	0	-11.4	+1.5	-9.9
Total	-11*	-0.1	-67.3*	55.9	-27.2*	15.8	-34.4*	23.4

*Note.* Numbers refer to statistical terms: (1) = Log-likelihood value, (2) = Bayes factor; Bayes factor indicates degrees of evidence against the null hypothesis; > 2 means evidence is not worth discussing; 2-6, 6-10, and < 10 respectively mean evidence is positive, strong, very strong against the null hypothesis (Wilson, 2013).

\* $p < .05$ .

Please note that this research interpreted the data while taking Bayes factors into consideration; thus, we will closely look at only the differences whose Bayes factors were more than 2 as they were worth discussing (Wilson, 2013). Looking at the data by individual modal, the modal “can,” which was produced most frequently by all the JNNS groups as shown in Table 2, was overused by all the groups except for the B1-2 group at a level that was statistically significant, indicating their heavy reliance on this modal. Furthermore, the differences in the use of “would,” which was infrequently used by all the JNNS groups relative to NSs, were statistically significant, implying JNNSs’ unfamiliarity with this modal.

Looking at the data by proficiency level, a notable fact can be that learners at A2 to B1-2 levels underused the modal verbs at a level that was statistically significant. Among the nine modals, “could,” “might,” “would,” and “will” were underused by learners at those levels at a statistically significant level. In sum, when compared to NSs, learners at relatively lower levels infrequently used the nine modals in their speeches and might have been less familiar with the past tense forms of the modals

than their present tense forms.

## 4.2. Modality Analysis

Modality analysis was carried out to identify whether or not JNNSs preferred/avoided conveying certain modalities relative to NSs. Coates (1983) categorized the modal verbs into two groups according to their modalities: epistemic and root modality. The former is related to speakers' evaluation of propositions; the latter stands for permission, obligation, and speakers' ability or willingness to do something. Palmer (1990), however, questioned whether or not we can capture modalities conveyed by the modal verbs in this dichotomous manner because the modal "can," for example, can convey two obviously different root modalities:

- Taro can play the guitar.
- Can I sit here?

In the first example, "can" is used with the meaning of ability but in the second example, it expresses permission. To distinguish these two modalities from each other, Palmer (1990) further divided root modality into two sub-groups, namely, deontic and dynamic modality. Deontic modality stands for permission and obligation; dynamic modality stands for speakers' ability or willingness to do something. For Biber, Johansson, Leech, Conrad, and Finegan (1999), the modal verbs are grouped according to their main meanings. In this research, modality analysis was performed based on a taxonomy integrating Palmer's and Biber et al.'s taxonomies as summarized in Table 4.

**Table 4.** Summary of Modalities and Modal Meanings

Modal	Epistemic Modality	Root Modality	
		Deontic Modality	Dynamic Modality
Can	Possibility	Permission	Ability
Could	Possibility	Permission	Ability
May	Possibility	Permission	n/a
Might	Possibility	Permission	n/a
Will	Prediction	n/a	Volition
Would	Prediction	n/a	Volition
Shall	Prediction	n/a	Volition
Should	Certainty	Necessity/Advice	n/a
Must	Certainty	Obligation	n/a

Modality analysis was quite challenging because it was not always the case that the modal verbs distinctly conveyed any one of their possible modalities. Let us consider the following example:

e.g., "I think students should use computers for their study" (SD\_JPN\_005).

In this excerpt, two readings appear to be possible: one is that "should" expresses the speaker's certainty about the proposition and the other is that "should" expresses the speaker's advice to students. These cases where modal meanings conveyed were indistinct were placed into the columns named "Others" (see Table 5) to prevent the current study from conducting modality analysis by guesswork. Additionally, cases where the modal verbs were misused were also placed into the "Others" columns. Table 5 compares the contribution of each modal toward each modal meaning and each modality between NSs and JNNSs, and results are expressed as percentages.

**Table 5.** Results of Modality Analysis

Group	Modality	Modal										
		Can	Could	May	Might	Will	Would	Shall	Should	Must	Total	
NS	Epistemic	7	21	75	100	69	38	0	14	50	30	
	Root	Deontic	10	0	25	0	n/a	n/a	n/a	80	50	11
		Dynamic	62	74	n/a	n/a	26	57	0	n/a	n/a	49
	Others	21	5	0	0	5	5	0	6	0	10	
B2+	Epistemic	4	3	50	100	63	13	0	4	0	12	
	Root	Deontic	5	3	0	0	n/a	n/a	n/a	88	100	17
		Dynamic	57	89	n/a	n/a	20	75	100	n/a	n/a	47
	Others	34	6	50	0	17	13	0	8	0	24	
B1-2	Epistemic	3	0	71	0	46	0	0	3	20	7	
	Root	Deontic	3	3	0	0	n/a	n/a	n/a	70	60	13
		Dynamic	53	94	n/a	n/a	38	100	0	n/a	n/a	47
	Others	41	6	29	0	17	0	0	26	20	34	
B1-1	Epistemic	1	0	80	100	19	7	0	1	0	4	
	Root	Deontic	3	0	0	0	n/a	n/a	n/a	83	63	16
		Dynamic	52	93	n/a	n/a	65	87	0	n/a	n/a	47
	Others	43	7	20	0	16	7	0	16	38	34	
A2	Epistemic	5	9	56	0	51	0	0	2	11	9	
	Root	Deontic	2	0	0	0	n/a	n/a	n/a	76	67	15
		Dynamic	53	84	n/a	n/a	26	100	100	n/a	n/a	44
	Others	40	6	44	0	26	0	0	22	23	12	

As can be seen from Table 5, regardless of their levels of English proficiency, JNNSs used the modal verbs to convey dynamic modality with the most frequency, followed by deontic modality and epistemic modality. For NSs, they also conveyed dynamic modality with the most frequency. Unlike JNNSs, however, NSs preferred conveying epistemic modality over deontic modality. These differences in preference for modalities may lead us to infer that JNNSs either preferred conveying deontic modality or avoided conveying epistemic modality when compared to NSs. To see whether or not JNNSs over-/under-conveyed certain modalities when compared to NSs, a Chi-square test was performed on the data by using Mizumoto's (2015) web-based application, langtest.jp (freely available from <http://langtest.jp/>).

**Table 6.** Results of a Chi-square Test

Group	Epistemic Modality	The other Modalities	Total	$\chi^2$	df	Cramer's V	95% CI for Cramer's V	
							LL	UL
NS	249	573	822	268.1214*	4	0.311	0.28	0.34
B2+	37	276	313					
B1-2	32	456	488					
B1-1	21	567	588					
A2	51	510	561					
Group	Deontic Modality	The other Modalities	Total	$\chi^2$	df	Cramer's V	95% CI for Cramer's V	
							LL	LL
NS	88	734	822	11.8275	4	0.065	0.03	0.10
B2+	53	260	313					
B1-2	65	423	488					
B1-1	92	496	588					
A2	85	476	561					
Group	Dynamic Modality	The other Modalities	Total	$\chi^2$	df	Cramer's V	95% CI for Cramer's V	
							LL	LL
NS	401	421	822	3.2894	4	0.034	-0.003	0.072
B2+	148	165	313					
B1-2	228	260	488					
B1-1	275	313	588					
A2	246	315	561					

Note. Cramer's V is one type of effect size measure; .10. means a small effect size; .30. means a medium effect size; .50. means a large effect size (Mizumoto & Takeuchi, 2008); LL = lower limit; UL = upper limit.

\* $p < .05$ .

According to Table 6, statistical significance was found only for the use of epistemic modality. Multiple comparison tests were then performed on the data regarding this type of modality to identify which JNNS groups over-/under-conveyed this modality relative to NSs.

**Table 7.** Results of Multiple Comparison Tests

Comparison	$\chi^2$	df	Cramer's V	95% CI for Cramer's V		
				Lower limit	Upper limit	
NS vs.	B2+	41.0311*	1	0.1217	0.1334	0.2456
	B1-2	102.3776*	1	0.1922	0.2289	0.3287
	B1-1	158.0848*	1	0.2388	0.2877	0.3804
	A2	88.2312*	1	0.1784	0.2026	0.3013

Note. Cramer's V is one type of effect size measure; .10. means a small effect size; .30. means a medium effect size; .50. means a large effect size (Mizumoto & Takeuchi, 2008).

\* $p < .05$ .;  $p$ -value is adjusted with Bonferroni method.

Table 7 shows that when compared to NSs, JNNSs infrequently added epistemic modality to their statements at a statistically significant level no matter where their levels of English proficiency were. Given that NSs' language use is the norm that learners should conform to, JNNSs' infrequent use of epistemic modality can be an issue to address.

### 4.3. Error Analysis

To begin with, this research sought to define mistakes or errors that were supposed to be caused by the lack of knowledge of the modal verbs. To this end, NICE properties (Huddleston, 1976), which distinguish English auxiliary verbs (i.e., "be," "have," and "do") and modal verbs from main verbs (e.g., "like," "play," "make"), were adopted as a judgment criterion of errors. Coates (1983) added another three properties to the NICE properties in order to distinguish modal verbs from auxiliary verbs. The following is a summary of these properties:

- (a) Takes negation directly (can't, mustn't).
- (b) Takes inversion without DO (can I?, must I?).
- (c) 'Code' (John can swim and so can Bill).
- (d) Emphasis (Ann COULD solve the problem).
- (e) No -s form for third person singular (\*cans, \*musts).
- (f) No non-finite forms (\*to can, \*musting).
- (g) No co-occurrence (\*may will) (Coates, 1983, p. 4).

The properties (a) to (d) and (e) to (g) respectively correspond to the NICE properties and what Coates (1983) added. This study found four additional types of errors made by JNNSs as below:

- (h) Inflected forms of verbs after the modals:  
e.g., "uh he can --- he can \*swam in the sea" (SD\_JPN\_030).
- (i) Incorrect employment of modal verb phrase tenses:  
e.g., "Then, the boy \*can do it." (SD\_JPN\_012).

In the excerpt of (i), the speaker was talking about the past; that is, this excerpt represents the speaker's failure of adjusting the modal verb phrase to the tense in the sentence. Please note that all the errors regarding this type occurred when JNNSs intended to refer to past events or actions.

## (j) Redundant modals:

e.g., “-if I umm I will become --- I \*will be a lawyer, I use, uh, I will make a lot of documents-”  
(SD\_JPN\_079).

## (k) Non-use of main verbs after the modal verbs:

e.g., “We can \*everything in smart phone” (SD\_JPN\_021).

Errors made by JNNs fell within (a), (h), (i), (j), and (k) as summarized in Table 8.

**Table 8.** Results of Error Analysis

Group	Error Type				
	(a)	(h)	(i)	(j)	(k)
B2+	1	6	20	1	3
B1-2	2	10	54	2	11
B1-1	0	14	65	4	21
A2	0	20	67	5	13
Total	3	50	206	12	48

It seems that JNNs tended to make the following three types of errors: (i) the use of incorrect tenses of modal verb phrases, (h) the use of inflected forms of verbs after the modals, and (k) the non-use of main verbs after the modals. This research considered these three types of errors to be common among JNNs and will discuss them in the following.

## 5. Discussion

### 5.1. Results of Frequency and Meaning Analysis

The frequency analysis indicated JNNs' strong preferences for the modal “can.” Putting this clearly, they used this modal with the most frequency regardless of their levels of English proficiency; this modal was overused by all the JNNs' groups except for the B1-2 group at a statistically significant level. In terms of second language acquisition, the meanings the modal “can” can convey are supposed to be acquired by learners of English more easily than the other modals' meanings (Seog & Choi, 2018). JNNs' heavy reliance on this modal thus seems to corroborate the easiness of acquiring its meanings to some degree. However, the reason why learners can acquire the meanings of “can” relatively easily would need to be investigated further to obtain a clearer picture of learners' developmental order of the modal verbs.

Considering JNNs' strong preferences for “can” positively, they might not have had an aversion to this modal. It may be thus possible to deepen learners' knowledge of this modal. For example, polite request forms (e.g., “can you-?” or “can I-?”), which have been undersupplied in Japanese EFL textbooks (Nozawa, 2014), can be worth treating in textbooks or classrooms to teach how to save face, “the public self-image that every member wants to claim for himself” (Brown & Levinson, 1987, p. 61). Their notion of face has two aspects, namely, negative and positive face. Using polite request forms appropriately would allow us to save the negative face, wants to be free from imposition. Furthermore, teaching this usage would help learners to develop their communicative competence, especially sociocultural competence, the ability to choose optimal linguistic expressions in accordance with the social situation.

Pragmatically speaking, the modals, “may,” “might,” “can,” “could,” “should,” “would,” and “must” have the potential to not only vary the degree of our commitment to propositions but also soften our statements, and their epistemic meanings take on this role (Boncea, 2014). Lexical items having such functions are called hedges. The primary finding of the modality analysis was that regardless of their



levels of English proficiency, JNNSs infrequently added epistemic modality to their statements when compared to NSs at a level that was statistically significant. Although hedging devices include expressions other than the nine modals such as “perhaps,” “maybe,” or “I think,” A2 to B1-2 levels learners' infrequent use of the modals and their infrequent modification of statements with epistemic modality imply that JNNSs might fail to express their opinions or thoughts indirectly when needed or to employ politeness strategy appropriately.

Looking more closely at how learners at A2 to B1-2 levels used the nine modals, they underused three of the past tense forms of the modals (i.e., “could,” “might,” “would”) at a statistically significant level, all of which can be used to express unreality and tentativeness (Palmer, 1990). When we intend to refer to unreal things, modal verbs are expressed in the past tense forms as in “if I were you, I would not say such a thing” or “I wish you could come to the party.” In spoken contexts where speakers are often required to quickly react to what interlocutors said (Chafe & Danielwicz, 1987), tentativeness would play a more important role because it would be often the case that speakers cannot respond to interlocutors' utterances with total confidence.

“Would” and “could” have the potential to make our statements more polite than their corresponding present tense forms (Palmer, 1990). Because there are times when we talk with socially powerful people, we may sometimes be required to use the past tense forms of the modals rather than main verbs only or their corresponding present tense forms. Considering these functions the past modals have, it might not have been surprising even if there had been many more instances of the past modals since the corpus analyzed in this research is the collection of interviews between students and teachers, possibly indicating that JNNSs' infrequent use of the past modals might have been attributed to their unfamiliarity with those functions or their inability to use the past modals correctly.

## 5.2. Results of Error Analysis

According to the error analysis, the misuse of modal verb phrase tenses (i.e., (i)) was the most common error type among JNNSs. To explore the reason for the highest rate of this type of error, I further investigated which modal contributed to this type of error the most and found that more than 89% of this type of error was made with regard to the use of “can.” The past meanings of this modal can be expressed by using “could,” “was/were able to,” or “could/can have + past participle”; nevertheless, Wordsmith 7 (Scott, 2016) found only six instances of “was/were able to” and one instance of “could” taking the perfect aspect, indicating that JNNSs did not master how to express the past meanings of “can.” An argument that the meanings of “can” can be acquired relatively easily (Seog & Choi, 2018) and the high rate of this error type with regard to the use of “can” would imply that acquiring grammatical aspects of “can” is not as easy as its meanings. Because errors concerning tenses of modal verb phrases are very common among novice learners (Seog & Choi, 2018), in Japan, where more than 80% of JNNSs fall into A1 or A2 levels on the CEFR (Negishi, Takada, & Tono, 2013), it should be carefully taught how the past meanings of the modals, especially “can,” can be expressed.

The second most common error type was (h), i.e., the use of inflected forms of verbs after the modals. Its relatively high rate indicates that JNNSs might have difficulty using main verbs correctly in sentences where the modal verbs are used. According to Celce-Murcia and Larsen-Freeman (2013), learners' errors in modal use can be attributed to their overgeneralization of the subject-verb agreement rules to modals as in “she cans play the guitar.” However, this research argues that JNNSs' errors are due to their overgeneralization of the subject-verb agreement rules or sequence-of-tenses rules to main verbs rather than modal verbs.

The third most common error type was (k), i.e., the non-use of main verbs after the modals. This type of error can be an example of first language transfer into second language acquisition. Let us consider one of the errors made by JNNSs:

e.g., “We can everything in smartphone” (SD\_JPN\_021).

Watasi-tati-wa	sumaato-hon-de	subete(-ga)		deki-ru.
we-TOP	smartphone-with	everything(-NOM)	can-PRES	

“Intended meaning: We can do everything with our smartphones”

However, this sentence should be,

Watasi-tati-wa	sumaato-hon-de	subete	suru	koto-ga	deki-ru.
we-TOP	smartphone-with	everything	do-PRES	thing-NOM	can-PRES

“Intended meaning: We can do everything with our smartphones”

The most common translation of the ability sense of the modal “can” given in teaching materials or classrooms is “-deki-ru.” The most striking difference between the original sentence and the revised one is whether the main verb “do” exists or not. Interestingly, both Japanese translations would convey the same proposition to addressees. This may be because “-deki-ru” partly includes the meaning of the main verb “do.” In Japanese, it is sometimes possible to produce sentences that sound semantically understandable and grammatically correct without main verbs, possibly leading some JNNSs to use the modal verbs as main verbs. Hence, first language transfer was having an effect.

## 6. Conclusions

This CIA research has identified that when compared to NSs, most JNNSs were inclined to use “can” whereas “will” and all the past tense modals except for “should” were infrequently used by them (the answer to the first research question). Furthermore, all the JNNS groups infrequently conveyed epistemic modality when compared to NSs at a level that was statistically significant (the answer to the second research question), possibly indicating their failure of adding politeness to or softening their statements. Lastly, the error analysis exposed the three types of errors that JNNSs tended to make: (i) the use of incorrect tenses of modal verb phrases, (h) the use of inflected forms of verbs after the modals, and (k) the non-use of main verbs after the modals (the answer to the third research question).

These research findings suggest the following two points could be helpful in improving classroom instruction in Japan: (1) more emphasis should be placed on functions the past tense modals and epistemic modality have, and (2) misuse and errors common among JNNSs should be presented to students so that they can be careful not to make them.

For the first point, teachers can, for example, engage students in a task where one student who forgot to bring their homework tries to persuade their teacher to accept its resubmission. In this task where there is a social-power distance between participants in interactions, socially-powerless people are supposed to be required to use hedged expressions using the past tense modals such as “could you-?” or “I would like you to-,” rather than unhedged expressions such as “do you-?” or “I want you to-.”

For the second point, misuse and errors common among JNNSs would be worth treating in teaching materials or the classroom to call learners’ attention to them. To this end, for example, teachers can make learners compare sentences comprising modal verbs to those without modal verbs. Through this activity, learners would notice the rule that forms of verbs following modal verbs are not affected by person, number, or tense, potentially preventing learners from making the second most common type of error.

The current study has shown that CIA research can be valid in helping to obtain a picture of learners’ interlanguage for at least the use of the nine modal verbs. Undoubtedly, the next step would be to consider how we can bridge gaps in modal use between NSs and JNNSs. The current study

suggests addressing research questions formulated based on issues identified by CIA research. By so doing, research findings would be able to make a direct contribution toward the improvement of learner language.

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