「論文」

A Corpus-Based Study on Japanese EFL Learners' Use of Relative Clause Constructions: CEFR Criterial Feature and Error Analysis

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Abstract

Relative clause (RC) constructions are considered some of the most difficult grammatical items for Japanese EFL (English as a Foreign Language) learners. This study investigates the use of relative clauses by Japanese EFL learners at CEFR, A1 to B2 levels, using L2 learner corpora: the Japanese EFL Learner Corpus (JEFLL: Tono, 2007) and the NICT JLE Corpus (NICT JLE: Izumi, Isahara, & Uchimoto, 2005). The types of RCs were categorized based on the SO Hierarchy Hypothesis (SOHH: Hamilton, 1994) and the frequencies of each RC type were compared against those from a CEFR-based Coursebook Corpus. Error analysis was also conducted for learner corpora. Results show that the frequency order of RCs followed the order predicted by the SOHH at each CEFR level across three corpora and that the frequency increased along the CEFR levels. The error analysis identified various types of structure errors, which are the most frequent error types in both JEFLL and NICT JLE.

1. Introduction

The Common European Framework of Reference for Languages: Learning, Teaching, Assessment (CEFR), has influenced the Japanese government's reform plans for English education in Japan. English teachers are encouraged to set learning goals and assess learners' progress using CAN-DO statements, focusing on what the learners can do using English. In related research fields, research programs, such as the English Profile Programme, analyses learner data by extracting so-called criterial features (Hawkins & Filipovic, 2012). According to Hawkins and Filipovic (2012), a criterial feature is a linguistic feature that distinguishes one CEFR level from another. Hawkins

and Buttery (2012) states there are 4 types of criterial features.

- Positive linguistic features (Acquired/ Learnt linguistic features)
- Negative linguistic features (Developing linguistic features)
- Positive usage distributions (Native-like distribution of a correct feature)
- Negative usage distributions (Non-native-like distribution of a correct feature)

A positive linguistic feature is the correct use of a certain linguistic feature, while a negative linguistic feature is its erroneous use. Positive usage distributions are learners' usage distributions similar to those of native speakers, while negative usage distributions are the ones that do not match with native speakers. In this study, the first two (positive linguistic features and negative linguistic features) are focused on by analysing Japanese EFL learners' frequencies of correct use and misuse of RCs.

Hawkins (2009) listed related grammatical items and suggested 20 hypotheses that can be criterial, one of which is the relative clause construction.

If criterial features are extracted from the Japanese EFL learner data, it can be helpful for developing more grammar-specific descriptors for CAN-DO statements at each level. This paper aims to investigate Japanese EFL learners' use of relative clause constructions, using both written and spoken corpora. The CEFR-based Coursebook Corpus is also used in order to compare the input and output based on the CEFR. Furthermore, errors are examined closely.

2. Literature Review

2.1 English relative clauses and their acquisition

Hawkins (2009) suggested in his 20 hypotheses that the use of relative clauses increase along the CEFR levels and that learners use simpler types of RCs, classified by the Noun Phrase Accessibility Hierarchy (NPAH: Keenan & Comrie, 1977)

SU > DO > IO > OBL > GEN > OCOMP

This hierarchy is said to reflect the frequency of the different relative pronoun functions and the presence or absence of specific relative pronoun types in a given

language. Some SLA researchers have claimed that this hierarchical order is applicable for the acquisition of RCs as well. It has been stated that SU is the easiest, followed by DO, IO, OBL, GEN, and OCOMP (Hawkins, 1987; Eckman et al., 1988).

There is other categorization of RCs other than NPAH. The SO Hierarchy Hypothesis (SOHH: Hamilton, 1994) claims that there are four types of RC sentences, depending on the matrix position of the RC and the depth of embedding. S means Subject, and O is Object. To illustrate the four types of RCs, Hamilton (1994) showed the following example sentences:

OS They saw **the boy who** entered the room.
OO A man bought **the clock that** the woman wanted.
SS **The man who** needed a job helped the woman.
SO **The dog that** the woman owns bit the cat.

OS < OO/SS < SO
< = is implicated by

Izumi (2003) highlighted that both the matrix position of RC and depth of embedding affect ease or difficulty of processing RCs. It is suggested that OS is the easiest type followed by OO and SS, and the most difficult type is SO. The easiest type of RC modifies the object of the matrix sentence and relative pronoun functions as the subject of the RC. In contrast, the most difficult type of relative clause modifies the subject, and the relative pronoun functions as the object.

Takahashi (2016) analysed the use of RCs in JEFLL and Coursebook Corpus. She used NPAH (Keenan & Comrie, 1977) to categorize RCs. Her study showed that the frequency itself could be a good indicator of proficiency level as the use rate per person increased along the CEFR level (A1 to B2). Also, the order of NPAH was supported as the frequency increased along the level while keeping NPAH order at each level.

Avoidance (Schachter, 1974) of the use of RCs may be possible, since they are some of the most difficult grammar items for Japanese EFL learners. Murakoshi (2015) analysed 209 1st to 3rd grade Japanese High School students' English writing in order to reveal usage frequencies of various grammatical items. For the usage of RCs, he stated that 85% of the 3rd year high school students do not use RCs even though they are

familiarized with RCs from junior high school and continuously practiced using them in high school English classes. However, since the task was spontaneous writing, it was not clear whether they could produce them if they were told to, or whether they had not yet acquired them.

Biber et al. (1999) illustrated the RC distributions in different registers. They revealed the frequency of each relativizer in the *Longman Grammar of Spoken and Written English Corpus* (LGSWE), which comprises 40 million words of texts in American and British English. The corpus is analysed from the perspectives of four registers: conversation, fiction, news, and academic prose. Overall, RC constructions occur far more frequently in academic prose.

2.2 Japanese relative clauses

Studies comparing Japanese and English relative clauses have provided useful insights when analysing Japanese EFL learners' relative clause errors in relation to L1 transfer. Some researchers have argued that some Asian languages do not share the same properties as English and European languages. Matsumoto (1988), for instance, mentioned that in Japanese, there are no relative pronouns, and Japanese has "gapless" relative clause-like constructions and "gapped" relatives. "Gapped" and "gapless" relative clause-like constructions are shown below (Matsumoto, 1988: 167).

(1) "Gapped"
[[hon-o kata] gakusei] – wa doko desu ka.
Book –ACC bought student TOP where is QUES.PART.
'Where is the student who bought a book?'
(2) "Gapless"
[[Atama-ga yokunaru] hon]
head-NOM improve book
'the book (by reading) which (one's) head improves'

Matsumoto also stated that the Japanese appositive clause construction has the same surface structure as the typical RC constructions. Based on these, Comrie (1998:51) proposed that the Japanese relative clause-like constructions should be called, "attributive clauses".

In addition, Ozeki (2011) highlighted that Japanese children can produce surprisingly complex relative clause sentences as below at a very early age around two years old:

[[kureyon moratta] oniityan-ni moratta] ametyan
'the candy [which I got from the guy [from whom I got crayons]] (Sumi 2: 10)

Examples from Ozeki (2011: 180)

Ozeki (2011) argued that this kind of complex structure is possible since there are no formal grammatical restrictions between the head noun and its relative clause in Japanese. Therefore, in the case of Japanese, one can attach simple sentences to the head nouns without grammatical restrictions.

These differences between English and Japanese language structure are important when analysing RC errors produced by Japanese EFL learners. Learners may apply the knowledge of flexible RC structure in Japanese when they produce English RC sentences, even though English RC structures are strictly ruled by its grammar.

2.3 Error analysis

In order to avoid comparative fallacy (Bley-Vroman, 1983) in data analysis, Lüdeling and Hirschmann (2015) suggested the following ways of detailed error analysis. Learner Utterance (LU) is utterance produced by learners, and target hypothesis (TH) is the correct usage. There might be multiple THs if there is more than one way to correct the LU.

LU: She must saved money.
TH1: She must have saved money.
TH2: She must save money.

(Lüdeling & Hirschmann, 2015)

In the detailed error analysis of the structure errors in this study, this way of annotation is used in order to find out possible causes of errors.

In the review, two types of categorizations of RC, NPAH and SOHH, are

explained. In this study, SOHH, which includes both the matrix position of RC and depth of embedding, will be used for the RC categorization and analysis.

3. Research Questions and Method

3.1 Research Questions

Studies related to relative clauses in SLA have mainly used elicitation task, which forces learners to use relative clauses. However, corpus data can reveal spontaneous use of relative clause as criterial features. Furthermore, corpus data specific to Japanese EFL learners needs to be focused as a useful means to gain insights for errors that might be characteristic to Japanese learners. Considering the above, three research questions are set as follows:

RQ1: Do the frequencies of RCs increase along the levels? Are they useful for distinguishing one CEFR level from another as a criterial feature?
RQ2: Does the order of difficulties predicted by SOHH correspond to the use of RCs across the CEFR levels?
RQ3: Which types of errors frequently occur in JEFLL and NICT JLE? If subcategorization of the structure error (STR) is possible, what kinds of errors are included in STR?

3.2 Relative pronouns examined in this study

This paper analyses RC constructions involving *that, which, who, whose* and *whom.* Zero-relatives are not included in this analysis.

3.3 Corpora

The following are brief descriptions concerning the corpora consulted in this study.

3.3.1 The JEFLL Corpus

The JEFLL (Japanese EFL Learner) Corpus is a written learner corpus (Tono, 2007). It consists of 10,063 compositions written by Japanese junior and senior high school students. The total number of words is 669,281 running words. Participants were asked to choose one out of six topics to write about in 20 minutes without any

preparation time. The use of dictionaries was not allowed. Topics include: a) Urashima, b) Rice or Bread, c) Festivals; d) Earthquake, e) Otoshidama, and f) Bad Dreams. For this study, a version of the JEFLL data reclassified by the CEFR levels was used. This version of data was developed by the KAKEN project, which was led by Tono (2016).

3.3.2 The NICT JLE Corpus

The NICT JLE Corpus is a spoken corpus, based on the Standard Speaking Test (SST) developed by ALC Press. The SST is a 15-minute face-to-face oral interview, consisted of the following five stages: 1) warm-up questions (3−4 minutes), 2) single picture description (2−3 minutes), 3) role play with the interviewer (1−4 minutes), 4) picture sequences (2−3 minutes), and 5) wind-down questions (1−2 minutes). The performance in the interview is assessed by two trained raters and is classified into one of the nine SST levels. Most participants are adults (Izumi, Isahara & Uchimoto, 2005).

3.3.3 The Coursebook Corpus

The CEFR-based Coursebook Corpus (Coursebook Corpus, hereafter) includes texts from 105 coursebooks published in Europe, which were all written according to the CEFR design specifications (1,761,520 running words). This corpus was also developed as part of the KAKEN project directed by Tono (2016).

3.4 Extraction of RCs

All the sentences containing relative pronouns were extracted from each corpus using AntConc (Anthony, 2014) and the Sketch Engine (Kilgarriff et al., 2014). Each surface form of the relative pronouns *that, which, who, whose* and *whom* was directly inserted into the search field to extract all the examples. Sentences without relative pronouns were manually removed from the list.

Table 1 below shows the total number of relative clause sentences at each level in three corpora. Analyses were conducted on 1807 examples from JEFLL, 1361 instances from NICT JLE, and 4704 instances from Coursebook Corpus.

Table 1: Total number of relative clause sentences in each corpus

Corpus	A1	A2	B1	B2	C1	C2	Total
JEFLL	129	861	794	23	-	-	1807
NICT JLE	38	528	605	190	-	-	1361
Coursebook Corpus	49	356	1199	1958	1034	108	4704

3.5 Annotations

Each sentence was annotated manually for the different types of relative pronouns (surface form) and constructions of relative clauses (SOHH) using Microsoft Excel spreadsheets. Tags are summarized below.

a) Surface form (*that, which, who, whose, whom*)
b) SOHH types (OS, OO, SS, SO)

3.6 Error types

For the learner data, error tags were also added. Error categories were defined based on Takahashi (2016), which includes the following seven types. Possible correct answers are answers requiring minimum correction.

a) Missing antecedents (MAT)
   At that time, <MAT> *who eat breakfast with me is my mother.*
b) Missing prepositions (MPR)
   He went to the place which he used to live <MPR>.
c) Missing relative subjects (MRS)
   I can meet my friends who <MRS> *haven't seen a long time.*
d) Missing relative objects (MRO)
   Our play was popular among the people who came and see <MRO>.
e) Resumptive pronouns (RSP)
   I take out the thing which <RSP>***it***</RSP> *is important to me.*
f) Wrong selection (SEL)
   Our class had a drama <SEL>*which*</SEL> *name is "Unexpected Guest."*
g) Ungrammatical structures in relative clauses (STR)
   We sang a song which is a famous singer.
   He made a magazine which called "Love from ryugujo."

Takahashi (2016) argued that subcategorization of *Ungrammatical structures in relative clause* (STR) needs to be done, since STR appears to be the most frequent type, which contains various structural errors, whereas the others are more specific to a particular element of the RC. Therefore, in order to provide a breakdown of STR, a detailed error analysis is conducted by examining each instance closely and giving each instance a

possible TH (Lüdeling & Hirschmann, 2015). Those errors are manually annotated for the following: 1) TH, 2) error information about surface structure, and 3) possible reasons why the error occur.

4. Results

4.1 RC frequencies

Table 2 and Table 3 show the usage rate of overall RCs across the CEFR levels in JEFLL and NICT JLE. In each table, it can be seen that the usage rate per person gradually increases along the CEFR level. This indicates that regardless of whether the RC sentences contain errors, the frequency of spontaneous RC productions can be a good indicator of their proficiency level as a criterial feature. Comparing two corpora, the usage rate per person in NICT JLE, which comprises spoken data, showed a relatively higher rate than JEFLL across the CEFR levels.

Table 2: The usage rate of overall RCs across the CEFR levels in JEFLL

JEFLL	A1	A2	B1	B2
Number of files (*n*)	3507	4956	1529	46
RC sentences	129	861	794	23
Usage rate per person	0.04	0.17	0.52	0.50

Table 3: The usage rate of overall RCs across the CEFR levels in NICT JLE

NICT JLE	A1	A2	B1	B2
Number of files (*n*)	260	718	263	40
RC sentences	38	528	605	190
Usage rate per person	0.15	0.74	2.30	4.75

4.2 SOHH type frequencies

Based on the raw frequencies and the size of the sub-corpora, normalized frequencies of SOHH in every 100,000 words are shown in Table 4.

Table 4 illustrates that the frequency order largely followed the order predicted by SOHH in each level, with partial differences. The frequency order follows OS > OO > SS > SO in JEFLL, whereas in NICT JLE and Coursebook, the order was OS > SS >

Table 4: Normalized frequencies of SOHH types across the CEFR levels (per 100,000 words)

Corpus	SOHH	A1	A2	B1	B2	C1	C2	Total
JEFLL	OS	41	137	187	99	-	-	464
	OO	31	78	105	77	-	-	291
	SS	14	42	53	66	-	-	175
	SO	6	14	21	11	-	-	52
	Unknown	2	0	1	0	-	-	3
	Total	94	271	367	253	-	-	985
NICT JLE	OS	13	50	112	179	-	-	354
	OO	11	14	30	57	-	-	112
	SS	11	31	57	89	-	-	188
	SO	2	4	8	11	-	-	25
	Unknown	0	3	1	4	-	-	8
	Total	37	102	208	340	-	-	682
Coursebook	OS	24	75	167	222	242	253	983
	OO	6	18	39	44	69	60	236
	SS	13	23	40	66	65	49	256
	SO	0	4	5	8	9	18	44
	Total	43	120	251	340	385	380	1519

OO > SO. More object relatives at subject position are used in JEFLL, and more subject relatives at subject position are used in NICT JLE and Coursebook Corpus.

In order to statistically test the frequencies across the CEFR levels, chi-square test and residual analysis were carried out. Tables 5, 6, and 7 below indicate the standard residuals in three corpora (SOHH types, CEFR level)

In Table 5 (JEFLL), the overall chi-square test was statistically significant (χ^2 (15) = 245.763, p<.01, V=0.01). The frequencies of all the SOHH types (OS, OO, SS, and SO) at A levels were found to be significantly lower than expected; however, they showed the highest frequencies at the B1 level. The SOHH frequencies seem to be a good indicator to differentiate between A1 and B1 levels.

In Table 6 (NICT JLE), the overall chi-square test was statistically significant (χ^2 (15) = 413.572, p<.01, V=0.011). NICT JLE shows a clear division between A-levels and B-levels in terms of the significantly lower frequencies of OS, OO, and SS at A-levels compared against significantly higher frequencies at B-levels. It is noteworthy that the most difficult SO type increased at B1 level in NICT JLE.

Table 5: The results of chi-squared test and residual analysis (JEFLL)

SOHH	A1	A2	B1	B2
OS	-10.474**	0.819	8.361**	-0.883
OO	-6.919**	0.509	5.42**	-0.024
SS	-5.409**	0.718	3.58**	1.261
SO	-2.968**	-0.325	2.971**	-0.271
Unknown	1.493	-1.711	0.62	-0.308
Other words	13.848**	-0.951	-10.966**	0.231

χ^2 (15) = 245.763, p<.01, Cramer's V = 0.010, *p<.05, **p<.01

Table 6: The results of chi-squared test and residual analysis (NICT JLE)

SOHH	A1	A2	B1	B2
OS	-7.458**	-8.697**	9.537**	9.695**
OO	-2.422*	-5.239**	4.208**	6.157**
SS	-4.998**	-4.862**	5.578**	6.074**
SO	-1.535	-1.918	2.161*	1.896
Unknown	-1.625	2.66**	-2.14*	0.672
Other words	9.452**	10.883**	-11.608**	-13.019**

χ^2 (15) = 413.572, p<.01, Cramer's V = 0.011, *p<.05, **p<.01

Table 7: The results of chi-squared test and residual analysis (Coursebook)

SOHH	A1	A2	B1	B2	C1	C2
OS	-12.353**	-14.208**	-1.202	10.92**	9.304**	3.26**
OO	-5.8**	-6.667**	-0.274	1.789	8.308**	1.691
SS	-5.418**	-6.895**	-2.96**	7.744**	4.39**	0.105
SO	-2.275**	-1.954	-1.031	1.625	2.188*	2.435*
Other words	14.906**	17.244**	2.486*	-13.018**	12.902**	-3.697**

χ^2 (20) = 761.123, p<.01, Cramer's V = 0.010, *p<.05, **p<.01

In Table 7 (Coursebook), the overall chi-square test was statistically significant (χ^2 (20) = 761.123, p<.01, V=0.01). Proportional use of SOHH types between the lower three groups (A and B1 levels) and the upper three groups (B2 and C levels) were seen. At A levels, all the four types of relative clauses were lower than expected, which was all statistically significant, except for SO at A2. At B1, all the four types became fairly frequent, and no statistical difference in observed frequencies was found against expected frequencies. At B2, however, OS and SS became more frequent than

expected, and all the four types were found to be significantly more frequent than expected at B2 level. OO and SS are considered to be equally difficult, positioned in the middle, according to the SO hierarchy, but as far as Coursebook Corpus is concerned, SS seemed to be more widely used at the intermediate levels than OO.

The results of chi-square tests and residual analysis show that the frequencies in each of the three classifications drew a clear line, especially between the groups lower than B1 and those above B1. Therefore, each corpus seemed to show a common cut-off point in frequencies to distinguish the upper CEFR levels from the lower ones. This indicates that SOHH type frequencies in all corpora at each level followed SOHH order with partial differences, and their frequency increased along the level, thereby keeping the SOHH frequency order.

4.3 Error Analysis

Tables 8 and 9 indicate the frequencies and percentages of correct use and misuse of relative clauses in two learner corpora. It was found that the RC error rate in JEFLL and NICT JLE was 22.47%, and 12.65%, respectively. The majority of RCs were used correctly.

Table 8: Frequencies and percentages of correct use and misuse of RCs (JEFLL)

JEFLL	RC sentences	%
Correct use	1401	77.53%
Errors	406	22.47%
Total RC sentences	1807	100.00%

Table 9: Frequencies and percentages of correct use and misuse of RCs (NICT JLE)

NICT JLE	RC sentences	%
Correct use	1189	87.35%
Errors	172	12.65%
Total RC sentences	1361	100.00%

Tables 10 and 11 below summarize the frequencies and percentages of correct use and misuse across the CEFR levels. To make the two corpora comparable, 200 samples were randomly sampled from each corpus.

Table 10: Frequencies of RC errors across the CEFR levels
(Random sampling of 200 cases per level: JEFLL)

Error types	A1		A2		B1		B2		Total	
MAT	1	0.5%	3	1.5%	3	1.5%	0	0.0%	7	0.9%
MPR	6	3.0%	0	0.0%	3	1.5%	16	8.0%	25	3.1%
MRO	0	0.0%	1	0.5%	0	0.0%	0	0.0%	1	0.1%
MRS	6	3.0%	2	1.0%	3	1.5%	0	0.0%	11	1.4%
RSP	4	2.0%	2	1.0%	3	1.5%	0	0.0%	9	1.1%
SEL	14	7.0%	9	4.5%	7	3.5%	0	0.0%	30	3.8%
STR	30	15.0%	19	9.5%	27	13.5%	8	4.0%	84	10.5%
Error total	61	30.5%	36	18.0%	46	23.0%	24	12.0%	167	20.9%
Correct use	139	69.5%	164	82.0%	154	77.0%	176	88.0%	633	79.1%
Total	200	100.0%	200	100.0%	200	100.0%	200	100.0%	800	100.0%

Note: Bootstrap sample was used for A1, due to its small sample size.

Table 11: Frequencies of RC errors across the CEFR levels
(Random sampling of 200 cases per level: NICT JLE)

Error types	A1		A2		B1		B2		Total	
MAT	1	0.5%	1	0.5%	2	1.0%	0	0.0%	4	0.5%
MPR	2	1.0%	2	1.0%	1	0.5%	2	1.0%	7	0.9%
MRO	1	0.5%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
RSP	5	2.5%	2	1.0%	3	1.5%	6	3.0%	16	2.0%
SEL	1	0.5%	11	5.5%	0	0.0%	0	0.0%	12	1.5%
STR	36	18.0%	25	12.5%	8	4.0%	11	5.5%	80	10.0%
Error total	46	23.0%	41	20.5%	14	7.0%	19	9.5%	120	15.0%
Correct use	154	77.0%	159	79.5%	186	93.0%	181	90.5%	680	85.0%
Total	200	100.0%	200	100.0%	200	100.0%	200	100.0%	800	100.0%

Looking at the proportion of each error more closely, structure error (STR) is the most frequent, and it is more than a half of the total errors in JEFLL (10.5% out of 20.9%) and NICT JLE (10.0% out of 15.0%). As a common tendency in two corpora, STR frequencies are lower at B levels than A levels, but they remain the most frequent error type, even at B2 level. Because of this occurrence, more detailed error analysis was carried out.

Other than STR, in JEFLL, it should be noted that selection error (SEL) gradually declined along the level, while missing preposition error (MPR) increased, especially at B2. This illustrates the occurrence of selection error in the RC productions of low

level learners, but as they start to use more complex structures involving prepositions, they start dropping the prepositions. This indicates that some of the frequent errors for low proficient and more proficient learners can be different and that making errors is not necessarily negative since the learners started using more complex structures.

4.4 Detailed Error Analysis

In 4.3, the most frequent error was found to be the structure error (STR). However, since many types of errors seemed to be mixed in this category, subcategorization of STR is attempted based on the surface structure. Tables 12 and 13 present the results of subcategorization in STR and the frequencies of the subcategories.

Table 12: STR error frequencies with subcategories (JEFLL: 217 instances)

Subcategories of STR	Frequencies	%
Structure/word order errors	75	34.56
RP + be-verb errors	19	8.76
Missing be-verb	76	35.02
Unnecessary (direct translation from Japanese)	22	10.14
Use of Japanese	16	7.37
Incomplete	9	4.15
Total	217	100.00

Table 13: STR error frequencies with subcategories (NICT JLE: 105 instances)

Subcategories of STR	Frequencies	%
Structure/word order errors	43	40.95
RP + be-verb errors	21	20.00
Missing be-verb	18	17.15
Unnecessary (direct translation from Japanese)	17	16.19
Incomplete	6	5.71
Total	105	100.00

The error types in tables 12 and 13 are explained with examples below.

- ***Structure/word order errors***
  Errors include complex grammatical errors and word order errors. This comprises errors that are difficult to state the common cause of the errors.

e.g.) *adults who are supposed to send children who and themselves know each other* [JEFLL, A2]

- ***RP (relative pronoun) + be-verb errors***
  Learners may understand that RC is one of the post-nominal modifiers, but the sentence structures following *RP + be* is incorrect. Learners may consider *RP + be* as a fixed phrase.

e.g.) *So they watched cinema which is trouble of plane* [NICT JLE, A1]

- ***Missing be-verb in relative clause***
  Be-verb following RP is dropped.

e.g.) *I like bread which ● made by us.* [JEFLL, B1]

- ***Unnecessary* (direct translation from Japanese)**
  This type is not necessarily errors but unnatural use of relative clauses, which may occur due to direct translations from Japanese phrases. The underlined part in the example below might be a direct translation from *otona no hito* 'adults.'

e.g.) *<jp>Otoshidama</jp> is some money which people who are adults give children.* [JEFLL, A2]

- ***Incomplete***
  Incomplete RC sentences are errors because they drop a necessary part of the RC sentence.

e.g.) *The man who is running on the road ●.* [NICT JLE, A1]
Suddenly a man who had a knife and gun ●. [JEFLL, A2]

The most frequent type was *structure/word order errors* in both corpora. It was not possible to identify the common causes of errors for this type, but all included

complex structural errors.

RP + be-verb errors can be considered as a part of *structure/word order errors*, but it has a common tendency in that the learners use RP and be-verb as a set. This might occur when learners gain input of OS-type RCs, which is found to be most frequent and easy, and assume that the be-verb comes right after the RP all the time. This indicates that learners know they can modify nouns using RPs, but they make structural errors when constructing whole RC sentences.

Missing be-verb error was frequently observed especially in JEFLL. Looking at the surface form, they are just missing be-verb; however, there might be some causes related to the use of RCs. The typical example of a missing be-verb (LU), the possible correct answer (TH), and possible causes of errors a) ~ c) are shown below:

LU: *I like bread which made by us.* [JEFLL, B1]

a) dropping be-verb of passive in RC.
   TH: I like bread which <u>is</u> made by us.

b) the grammar of RC construction and post nominal participle construction are confused
   TH: I like bread made by us.

c) OO type (which is more difficult than OS type) has not been acquired.
   TH: I like bread (which) <u>we</u> made.

The first possible answer (TH) for the LU is *I like bred which <u>is</u> made by us,* and this is based on the explanation that LU is dropping the be-verb of passive in RC. Inserting *is* makes the sentence correct. On the other hand, as the second TH shows, there is a possibility that the learner is using relative *which* and post nominal participle construction at the same time. For this case, removing *which* makes the sentence correct (*I like bread made by us*.). The last TH shows the possibility that the learners have not acquired OO type which is more difficult than OS type. To make this sentence correct from this perspective, *we* is inserted after the relative pronoun *which*.

Moreover, there is a possibility that learners make such errors when they use passives or post-nominal participle constructions within RCs, while they can correctly use them outside the RC sentences. In the entire JEFLL data, six learners used both RCs and passives or post-nominal participle constructions in their writing. Example

sentences from each learner are shown below.

Table 14: Example sentences produced by six learners who may be confused with the use of relative clauses, passives, and post-nominal participle constructions (JEFLL).

Learner 1	✓	…a bird called Tsuru…	PNP
	×	…a Omiya which built at Tango…	RC + passive, or PNP
Learner 2	✓	The ship was named "dream".	Passive
	×	…a ship that made from woods.	RC + passive, or PNP
Learner 3	✓	I was maked (made)…	Passive
	×	…a video that called about school festival.	RC + passive, or PNP
Learner 4	✓	…the special stage are built by senior students.	Passive
	×	…the place which we are called "Stage"	RC + passive, or PNP, OO type construction
Learner 5	✓	…pretty thing which was made by…	RC + passive
	×	…buresuretto which made of bi-zu.	RC+ passive, or PNP
Learner 6	×	…bread that made by XX.	RC + passive, or PNP
	×	…bread that made by XX.	RC + passive, or PNP

Note: Relative Clause (RC), Post-Nominal Participle Construction (PNP)

Learners 1, 2, 3, 4 used passives and post-nominal participle constructions correctly; however, they made errors when those are used with relative pronouns. This indicates that: 1) they could not construct passives in RCs and 2) they confused the use of RCs and post-nominal participle constructions. Learner 6 used *RP* + *made by* twice and both examples dropped the be-verb. This might be because Learner 6 used *made by* as a fixed phrase. On the other hand, Learner 5 used *RP* + *made by* correct, but *RP* + *made of* wrong. Learners 5 and 6 were both at B1 level, and this shows the feature of middle level learners' interlanguage, at which the knowledge of the form is not fully stabilized, thus producing occasionally ill-formed sentences. For those errors, it is also possible to say that since they have not acquired OO (or SO) type structure, they could not construct the latter part of the relative clause sentence after a relative pronoun. The input and output of OO (or SO) type may also be important for learners to be able to express what they want to say.

5. Discussion

In this section, each research question is revisited, and the study's results and implications will be discussed.

RQ1: Do the frequencies of RCs increase along the levels? Are they useful for distinguishing one CEFR level from another as a criterial feature?

The results showed that the RC frequencies increased along the level, and the ability to produce RC sentences spontaneously can serve as a positive linguistic features distinguishing A1 level from B1 level learners, which confirms Hawkins's hypothesis (2004). As learners become more proficient, more complex structures are frequently used. It is said that the RCs are used more frequently in writing than in speaking, yet NICT JLE showed more frequent RCs than JEFLL. One probable reason is because the Japanese EFL learners included in NICT JLE were adults, who could afford to pay examination fees, whereas JEFLL comprises written production of Japanese junior high and high school students. Moreover, considering the EFL learning environment in Japan, which focuses more on writing than speaking, one student's level of performance can be different for writing and speaking. Since the learners in the two corpora are not identical, A2 learners in NICT JLE may perform better and produce more RC sentences than do A2 learners in JEFLL, which also might mean that A2 learners in NICT JLE may perform better in writing than A2 learners in JEFLL. Moreover, in the Standard Speaking Test include picture description tasks, which force learners to describe particular people or things in detail, which may have led relatively short and simple but frequent production of RC sentences. Further, the interviews may have helped learners to produce a greater number of utterances. In JEFLL, what the students tried to write based on their experience might have been more complex and original.

RQ2: Does the order of difficulties predicted by SOHH correspond to the use of RCs across the CEFR levels?

It was found that the frequencies of RCs followed the order predicted by SOHH in all corpora, with partial differences. Hamilton's SOHH order shows that the difficulty of OO and SS is almost similar. JEFLL showed the frequency order OS > *OO*

> *SS* > SO, whereas NICT JLE and Coursebook Corpus demonstrated the OS > *SS* > *OO* > SO order at almost all levels. It should be noted that the difference between OO and SS might have occurred due to task effects in NICT JLE and coursebooks. For JEFLL, spontaneous production of free writing may have encouraged learners to write a) who does what to whom and b) why some particular things or people are important or their favourite. Such conditions may have allowed learners to use RC sentences with objects. Furthermore, the stories are already in the students' minds, such as their actual experiences or imaginations, which allows learners to access various complex stories instantly. On the other hand, tasks in NICT JLE include picture descriptions and picture sequences, which prompt speakers to explain particular things in the picture, such as how they look like and where they are, which may have elicited more subject RCs. It might be difficult to create picture description tasks that elicit various grammatical items and object relatives at the same time by using only few pictures. Coursebooks also have similar attributes as NICT JLE. There are limited spaces for pictures, reading materials, and exercises. Coursebooks are based on oral communication, which may focus mainly on simple OS type or subject RCs.

RQ3: Which types of errors frequently occur in JEFLL and NICT JLE? If subcategorization of the structure error (STR) is possible, what kinds of errors are included in STR?

The RC error rates in JEFLL and NICT JLE were not very high, and remained at 12% and 22%, respectively. Avoidance (Schachter, 1974) of the use of relative clauses may have occurred when students avoided using complex structures as they were afraid of making mistakes. Even though it was difficult to determine errors as being negative linguistic features due to the small sample size, it was found that there were different causes of errors in the most frequent error type, structure error (STR). A detailed error analysis and subcategorization of STR revealed that the STR included errors involving some grammatical items that might be confusing for learners to distinguish. RCs, passives, and other post-nominal modifications are introduced separately in different sections in the English textbooks. Considering these facts, after their initial introduction, those grammatical items need to be explained repeatedly concerning a) their usage together (e.g. passives in RCs), b) which part of the grammar items is similar and which part is different (e.g. differences between RCs and other post-

nominal modifications), or c) how they are different from Japanese, as English RCs are governed by strict rules, whereas Japanese is grammatically more flexible (Ozeki, 2011). There is a common tendency in that learners try to modify nouns, using relative pronouns by attaching simple sentences to the head noun, which results in structure errors.

6. Conclusion

This study aimed to examine Japanese EFL learners' use of relative clauses as criterial features. Written and spoken Japanese EFL learner corpora were analysed in order to extract criterial features, and a CEFR-based Coursebook Corpus was also analysed for comparison. Results show that a) spontaneous use of relative clauses and its frequency can serve as criterial features; b) the SOHH frequency followed the hierarchy predicted by SOHH at each level; and c) the overall frequencies increased along the level. Error analysis revealed that the most frequent error type, which contains structural errors (STR), can be subcategorized, and similar grammatical items need to be continuously taught.

There are some methodological limitations in this study. First, zero-relatives need to be extracted for analysis using regular expressions in order to more accurately capture the use of relative clauses. Second, error tagging should be done by more than one annotator in order to gain reliability in the tagging. Finally, Japanese English textbooks need to be added to the dataset, in order to investigate the relationship between input and output.

The information of RC type frequencies and error type frequencies at each CEFR level, may contribute to provide specific descriptions for each level, based on the data pertaining to Japanese EFL learners. Using relative clauses is especially important when reaching B level from A level, so that knowing frequently used RC types and frequently committed errors by B level learners may help teachers, learners, and teaching material developers by providing them with clearer objectives.

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