[Invited Paper]
Seem Constructions in Japanese EFL Learners' Interlanguage Grammar

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Abstract: Studies conducted within the Principles and Parameters framework demonstrated that any research on L2 acquisition cannot be completed without examining L1 effects (White, 1989). Furthermore, the recent development of the Minimalist Program (Chomsky, 1995) has led to renewed interest in the problem of intervention relative to locality at the LF syntax-semantics interface. Given that English-speaking children have great difficulty with raising patterns due to intervention effects (Hirsch and Wexler, 2007), we have examined how Japanese-speaking learners of English acquire the structure of raising across an experiencer phrase in a series of experiements, dealing with both intervention and transfer effects. Since Japanese does not have raising constructions (Takezawa, 1993, 2015), negative L1 transfer is expected. Based on the observed intervention and transfer effects, this paper presents the status of the construction in interlanguage grammar.

Keywords: *seem* constructions, intervention, L1 transfer, interlanguage grammar

1.　　Introduction

Recent L1 acquisition studies have reported that English-speaking children experience strong intervention effects in understanding raising constructions (Hirsch, Orfitelli and Wexler, 2008; Choe, Deen and O'Grady, 2014). Hirsch and Wexler (2007) found that young children had great difficulty with a raised pattern in (1a) around the age of 7 relative to an unraised pattern in (1b).

(1) a.　John appears to Mary to be happy.
　　b.　It seems to Mary that John is happy.

One traditional view is that their difficulty lies in the presence of an experiencer phrase *to Mary* in (1a). In other words, an intervention effect occurs as *John* moves from the infinitive subject position to the matrix subject position across the experiencer phrase. Such an intervention effect does not occur in the unraised structure (1b) because nothing moves across the experiencer phrase in question.

Furthermore, L2 acquisition studies conducted within the Principle and Parameter framework have demonstrated that research on L2 acquisition cannot be completed without paying careful attention to L1 transfer. Although several different theories have been proposed as an account for L1 transfer, one key issue relevant to L2 learners' insufficient acquisition concerns how they can reset a parametric value from L1 to L2 properly when they differ from each other (Schwartz and Sprouse, 1996; White, 1989; Hawkins, 2001; Lardiere, 2007). Relevant to this problem is the claim that Japanese does not have a syntactic operation parallel to English raising.

(2) a.　John-ga　　　Mary-ni　　shiawaseni omoeru/mieru.
　　　　John-NOM Mary-DAT happy　　　　seem/appear
　　　　'John seems/appears to Mary to be happy.'
　　b.　$[_{TP}$John-ga$_i$ $[_{TP}$Mary-ni$_j$ $[_{VP}$ t$_j$ $[_{TP}$ t$_i$ shiawaseni] omoeru/mieru]]]

(2a) is a literal translation of (1a)/(1b). According to Takezawa's analysis (1993, 2015), however, the dative -*ni* marked experiencer *Mary* moves to [Spec, TP], not base-generated there, whereas the nominative -*ga* marked *John* is scrambled clause-initially, as shown in (2b). The *omoeru*/*mieru* construction does not involve A-movement for a Case checking reason, unlike the *seem*/*appear* construction in English.

Since there is no raising counterpart in Japanese, negative transfer is expected. This means that *seem* raising sentences are difficult for Japanese-speaking EFL (JEFL) learners to acquire. In addition, generally speaking, since intervention effects make the construction more difficult to comprehend. Therefore, it is expected that the raising construction with the experiencer phrase would be very difficult for JEFL learners acquire. This paper summarizes our series of experimental studies that investigated whether JEFL learners experience intervention effects coupled with transfer effects when they comprehend raising sentences with the experiencer phrase in English.

The organization of the paper is as follows: The next section provides theoretical background for intervention effects and previous studies on the acquisition of *seem* sentences without experiencer phrases. Section 3 presents a series of our experiments that reports serious intervention effects and the status of the subject in the raised construction. Due to space limitation, discussions of experimental results are rather brief. Readers are recommended to check the original papers for details. These studies show how well JEFL learners comprehend unraised and raised constructions when intervention meets transfer during the course of their acquisition. Finally, the paper will end with a discussion of the JEFL learners' interlanguage grammar in section 4.

2.   Raising Constructions

2.1.   *Theoretical Assumptions*

A Minimalist analysis of raising assumes the surface subject of the sentence to start out in the infinitive subject position and move to [Spec, TP] of the matrix clause, checking the EPP feature (Chomsky, 1995). For example, (3) is a structural representation of (1a), where *John* is copied at the matrix subject position and deleted at the infinitive subject position (A-movement). Here *John* moves across the experiencer argument *Mary*, but remains as the semantic subject of the embedded predicate *to be happy*.

(3)   [$_{TP}$ John$_i$ [$_{T'}$ appears to Mary [$_{TP}$ ~~John$_i$~~ to be happy]]]].

Mary intervenes between *John* and its original, deleted ~~*John*~~, but the sentence is grammatical on the intended reading. Learners must adopt something like Collin's (2005) smuggling approach in which the entire infinitive clause (YP) smuggles over an intervener (W) to a position adjacent to the matrix subject (Z), as schematically illustrated in (4).

(4)   YP smuggles XP past W (Collins, 2005)
        Z [$_{YP}$ XP] W <[$_{YP}$ XP]>
         | (a) | |
         |_____(b)_____|

With the smuggling operation, the relationship between Z and XP is local, as in (4a), whereas without it, the anaphoric relation is not local, as in (4b), thereby violating Rizzi's (1990) Relativized Minimality (RM), as stated in (5).

(5)   Relativized Minimality (RM)
        In the following configuration: X ... Z ... Y, a local relation between X and Y cannot hold
        if Z intervenes, and Z is a position of the same type Y.

Thus, the raised sentence (1a) becomes difficult to comprehend.

2.2. Raised and Unraised Constructions

Previously, Choe (2015) reports Korean-speaking learners of English understood unraised *seem* constructions (6b) better (83%) than the raised construction (6a) (42%).

(6) a. John seems to be happy.　　　(42%)
　　 b. It seems that John is happy.　　(83%)

A similar tendency was observed in Yoshimura and Nakayama (2017) where an experiment with a truth-value judgment task (Crain and McKee, 1985) was given to 67 Japanese college students. They were asked to read the situations and judge whether the immediately following sentences correctly depicted the situations they had just read. In example (7), the first line describes the situation and the sentence below it (in italics) is the test sentence that the students were asked to judge. The actual questionnaire includes both True and False sentences, although the False examples are not listed in this paper.

(7) a. Han Solo thinks that Luke loves Princess Leia in the movie "Star Wars".
　　　　 Luke seems to love Princess Leia.　　　　　　　　(True)
　　 b. Steve saw that it was wet everywhere after he came out of the meeting.
　　　　 It appears that it rained while Steve was in the meeting.　　(True)

The Japanese EFL learners correctly judged the unraised construction (7b) 85% of the time while they did so on the raised construction (7a) 75% of the time. The raised construction was more difficult than the unraised construction. Note that, compared with Choe's results (raised 42% vs. unraised 83%), Yoshimura and Nakayama's results were better numerically, but this difference may have come from different test materials and the proficiency of learners.

Next we will review experimental studies on the raising constructions with the experiencer phrase.

3.　Raising Constructions with Experiencer Phrases

3.1.　Intervention Effects

Intervention effects were first reported in Yoshimura, Nakayama, Fujimori and Shimizu (2016), where the raising construction (8b) was compared with the subject control sentence (8a). A multiple-choice questionnaire that included sentences like (8) was given to 30 Japanese high school students (TOEIC scores 215~625). The correct answers are bold-faced in (8).[1]

(8) a. *Hanako promised Susan to join the school tennis team.*　　(Subject Control)
　　　　 Q: Who joins the school tennis team?
　　　　 A: 1. **Hanako**　 2. Susan　　 3. both　　　 4. I don't know
　　 b. *Jake appeared to Steve to have fun on his business trip.*　　(Raising Construction)
　　　　 Q: Who looked having fun during the business trip?
　　　　 A: 1. **Jake**　 2. Steve　　 3. both　　　 4. I don't know

The participants were divided into two groups based on their TOEIC scores: Novice-Low: TOEIC average score 285 (Range: 215~330, *SD*=40.05), Novice-High: TOEIC average score 443 (Range: 335~625, *SD*=92.58). Their English abilities were considered different as the difference of their TOEIC scores was statistically significant ($t(14)$=9.613, p<.004). A summary of results is stated in Table 1 below.

Table 1. Correct response rates by group and sentence type (%)

Group	Subject Control (8a)	Raising (8b)	Total
Novice Low (*n*=15)	66.7 (*SD* .475)	40.0 (.494)	62.8
Novice High (*n*=15)	75.0 (.436)	43.3 (.499)	69.4
Total (*n*=30)	70.8	41.7	

Susan is an intervening phrase in the subject control sentence (8a) while *Steve* is the intervening phrase in the raising construction (8b). As seen in Table 1, both participant groups performed better in the subject control sentence than the raising construction (Bonferroni, p<.001). The raising construction was difficult for Japanese high school students.

Yoshimura, Nakayama and Fujimori (2017) examined the raised construction with an experiencer phrase as in (9). Similar to Yoshimura, Nakayama, Fujimori and Shimizu (2016), this study employed a multiple-choice questionnaire given to 80 Japanese college students.[2]

(9)   *Kenji seemed to Mary to be an excellent signer for the school festival.*
        Q: Who would be an excellent singer at the school festival?
        A: **Kenji**   Mary   both   I don't know

The learners were divided into three groups based on their TOEIC scores, and the middle group was removed for the purpose of statistical analysis. The Low Group had 28 students (TOEIC score average 443.36, *SD*=40.05) while the High Group included 25 students with a TOEIC score average of 732.92 (*SD*=61). The score difference between the two groups was significant (t(51)=19.492, p<.000). In addition, the data from 18 native speakers of English (Control Group) were included for comparison. A summary of the correct response rates (%) is shown in Figure 1 below.
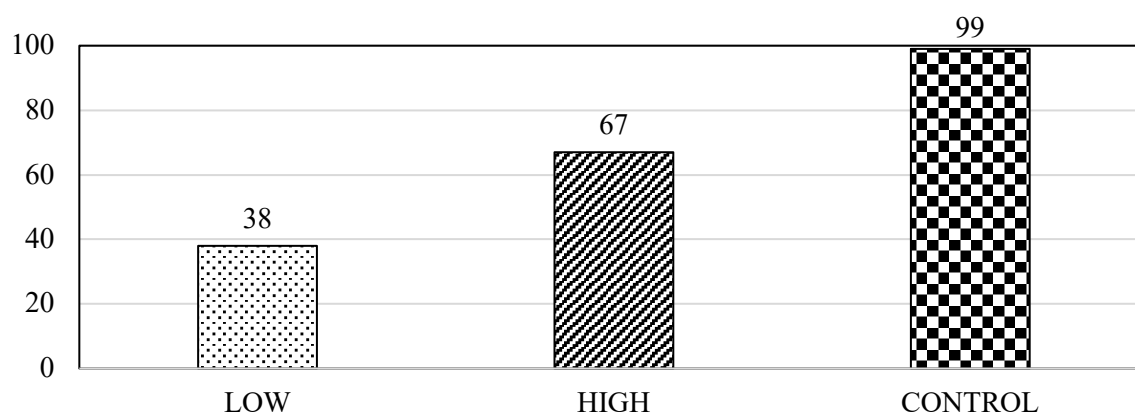

Figure 1. Correct Response Rates by Group (%)

The Low Group gave correct responses for sentences like (9) only 38% of the time. Close to 50% of all learners selected *Mary* as the subject of the infinitive VP (*be an excellent singer*). It seems that the learners knew that the infinitives need the subjects (i.e., satisfying the EPP). However, they, even the college students, take time to acquire the raising construction. Perhaps, it takes time because Japanese does not have an A-movement to assign nominative case to the subject.

Choe and Deen (2016) report that L1 children understood (10a) correctly only 40.9% of the time, but when the experiencer phrase is preposed as in (10b), their understanding improved (87.5%). Even when the experiencer phrase contains a pronominal like (10c), their understanding improved to 81.5%. These findings indicate that the type of the intervening phrase, lexical or pronominal, affects L1 children's understanding of the raising construction.

(10)a.   Donald seems to Mickey to be short.
      b.   To Mickey, Donald seems to be short.
      c.   Bart seems to him to be studying.

Following Choe and Deen, Yoshimura and Nakayama (2019) investigated similar constructions among JEFL learners. Employing the truth-value judgment task, they examined sentences like (11) among 51 college students and 7 native speakers of English. In (11a), the lexical experiencer phrase appears at the sentence initial (fronted) position whereas it is in situ in (11b). In (11c), the experiencer phrase appears in situ as in (11b), but it contains a pronoun instead of a lexical noun. A summary of results is shown in Table 2.[3]

(11)a.   Martha thinks that Kenny learns Japanese well.
            To Martha, Kenny appears to learn Japanese well.   (True)
    b.   Jennifer thinks that Hanako is smarter than Ai.
            Hanako seems to Jennifer to be smarter than Ai.   (True)
    c.   Amy is Robert's guest. He thought she ate well, and looked full.
            Amy appeared to him to be full.   (True)

Table 2. Correct response rates by group and sentence type (%)

Group	Lexical NPs fronted (11a)		Lexical NPs in-situ (11b)		Pronouns in-situ (11c)	
	True	False	True	False	True	False
JEFL (*n*=51)	94.1	92.8	53.3	73.9	85	92.8
Control (*n*=7)	100	90.5	95	95	90	90

As seen in Table 2, JEFL learners did well when the experiencer phrase appeared at the initial position, i.e., no intervention. However, they did not do well when the lexical experiencer phrase appeared in situ, i.e., the intervening position, although it improved when the phrase included a pronoun (Lexical vs. Pronominal $p<.0001$; Lexical fronted vs. in-situ $p<.0001$). These findings are similar to what Choe and Deen found in L1 children. The study found that: (i) when the experiencer phrase appears as an intervening phrase (i.e., in situ), the sentence becomes very difficult for JEFL learners to understand (Relativized Minimality effect (Rizzi, 1990)); (ii) The type of the intervening phrase matters, i.e., lexical nouns are more difficult than pronouns (Gibson, 2000); (iii) L2 learners may consider *seem* like *think* as L1 children do (Hirsch, Orfitelli and Wexler, 2008).

Yoshimura, Nakayama and Fujimori (2018) examined the following sentence types among 66 Japanese college students and 9 native speakers of English by employing the truth-value judgment task. (12a) is an example of the raised construction with a lexical subject and a pronominal experiencer whereas (12b) is an instance of the raised construction with a pronominal subject and a lexical experiencer. (12c) is an example of the unraised sentence with a pronominal experiencer. (12a) and (12c) simply have a raised vs. unraised difference. Thus, as we saw above, we would expect difficulty with the raised construction (12a). As for (12a) and (12b), the difference is the order of the nominal types of the matrix subject and the experiencer phrase, lexical-pronominal in (12a) vs. pronominal-lexical in (12b). Given the findings in Yoshimura and Nakayama (2019) above, (12b) is predicted to be more difficult than (12a) as the intervening phrase contains a lexical word.

(12)a.   Raised construction with a lexical subject and a pronominal experiencer
            Joe thinks that Hanako is smarter than Ai.
            Hanako seems to him to be smarter than Ai.   (True)
    b.   Raised sentence with a pronominal subject and a lexical experiencer
            Maria thinks that Kenny learns Japanese well.
            He appears to Maria to learn Japanese well.   (True)
    c.   Unraised sentence with a pronominal experiencer
            Jeff is Wanda's teacher and he thinks that she likes math.
            It seems to him that Wanda likes math.   (True)

The learners were divided into three groups (22 students each) based on their TOEIC scores: Low, TOEIC score average 505, Mid, TOEIC 610, High, TOEIC 712. A summary of results is in Table 3.

Table 3. Correct response rates by group and sentence type (%)

Group	Lexical Subject (12a)	Pronoun Subject (12b)	Unraised (12c)
Low	59.1	68.9	91.7
Mid	50.8	55.3	93.2
High	53.8	55.3	83.3
Native Control	96.3	96.3	98.1

As seen in Table 3, the raised construction is more difficult than the unraised construction. The unraised constructions did not differ among the four participant groups (including the control group). However, the raised construction with the experiencer phrase is difficult disregarding the different nominal types of the experiencer phrases (lexical vs. pronominal), which suggests a strong RM effect, especially among the intermediate (Mid and High groups) learners. This indicates that categorically the raised construction with the intervening phrase is more difficult (cf. Gibson's (2000) processing difference in lexical nouns and pronouns.)

Thus far, we have seen a strong intervention effect in the raised construction in the JEFL learners' interlanguage grammar. Now let us consider the structure of the raised construction. In particular, we consider the status of the matrix subject in the raised construction below.

3.2.   Subjects

Nakayama, Yoshimura and Fujimori (2018) investigated the learners' knowledge of the matrix subject in the raised construction. This is because Yoshimura and Nakayama (2010) found the following ungrammatical sentence accepted by JEFL learners, which is similar to Kuribara's (2003) finding.

(13)   *This time seems that he followed my advice.

Yoshimura and Nakayama interpreted their experimental results as JEFL learners did not understand that *seem* takes expletive *it*, and instead considered *this time* as the subject of *seem* in (13). If this explanation is correct, the learners may transfer the status of Japanese subjects to English, and would accept a PP as the subject in the *seem* construction. This hypothesis was tested in Nakayama, Yoshimura and Fujimori (2018). Passive sentences, another A-movement construction, were also included as a test construction. It examined whether JEFL learners would accept the sentence with a PP subject. A questionnaire with the acceptability judgment task (1~7, 7=acceptable) was created including two types of sentences like (14) and (15), and was given to 46 Japanese college students and 10 native speakers of English.

(14)a.   Ken cleaned Haruko's room.
                Haruko's room was cleaned by Ken.
      b.   Tomoko flew to Paris and enjoyed drinking good wine during the flight.
                On the plane was served good wine.
(15)a.   John was a reporter and he thought that Virginia had a lot of money.
                Virginia seemed to be rich.
      b.   Harry is Jane's secretary and he thought she looked sad after the business trip.
                After the business trip appeared to be feeling sad for Jane.

The learners were divided into two groups (23 people each) based on their TOEIC scores, Intermediate Group TOEIC score average 558.3 SD 27.86, Advanced Group 720.7 SD 74.52). The TOEIC score difference between the two learner groups was statistically significant ($F(1, 44)=59.914$, $p<.000$). A summary of the results is in Table 4.

Table 4. Acceptability ratings by sentence type and group (Unacceptable 1~7)

Group	Passive (14)		Raising (15)	
	Acceptable	Unacceptable	Acceptable	Unacceptable
Intermediate	6.08	4.35	5.36	4.34
Advanced	5.75	4.53	5.75	4.9
Native Control	6.32	2.12	5.94	1.46

There are no statistical differences between acceptable and unacceptable sentences among learners. In acceptable sentences, only the Intermediate group had a significant difference in sentence types (F(1, 547)=7.298 p<.007). In unacceptable sentences, there was a group difference (F(2, 523)=55.734, p<.000), though no difference in sentence type and no interactions. In each sentence type, there was a significant difference between the learner groups and the control group (Passives F(2,523)=19.574, p<.000; Raising F(2,523)=37.834, p<.000). The results suggest the following: (i) It takes time to call unacceptable sentences unacceptable. This is generally so because it takes time to become confident. (ii) The learners accept PPs as the subjects of the raising construction. This must be L1 transfer, as Japanese allows PPs with –*ga* at the subject position (Kuroda, 1987). Having a PP subject satisfies the EPP. But it is not like English, where feature-checking takes place to satisfy the EPP. This means that there is no A-movement in the raised construction. The subjects are base-generated. This base-generation seems to apply to passives as well, which suggests that their interlanguage grammar does not have A-movement.

We now turn to the discussion about the findings from these experiments above.

4.   Discussion

Our experiments discussed above indicate how difficult the raising construction is for JEFL learners to acquire. It is acquired much later than the subject control sentences. Moreover, having an intervening phrase substantially makes the construction more difficult for them to comprehend. Yoshimura, Nakayama, Fujimori and Yusa (2019a, b) further show that JEFL learners cannot even use pronominal and reflexive information to help comprehend sentences like (16) and (17) below.

(16)   A pronoun in the infinitive agrees in gender with either a subject or an experiencer phrase.
   a. The girl thinks that the boy likes his English teacher.
      The boy seems to the girl to like <u>his</u> English teacher.   (True)
   b. Mary thought that her brother worked hard on his assignment.
      Mary appeared to <u>her brother</u> to work hard on <u>his</u> assignment. (False)

(17)   Linda: Tom, Why are you so down?
   Tom: I made a simple mistake and got below 60 points on the exam. I lost confidence.
   Linda: Really? To tell the truth, I got below 60 points, too. I lost confidence, too.
     What shall we do?
   Tom seems to Linda to have lost confidence in (1. **himself** 2. *herself* 3. *themselves* 4. *don't know*)

Yoshimura, Nakayama, Fujimori and Yusa (2019a) examined whether JEFL learners can use the information of a pronoun in the infinitive that agrees in gender with either a subject or an experiencer phrase as underlined in (16). By using the truth-value judgment task, they found that learners did not seem to be able to use the information until they understood the construction fully. Similarly, Yoshimura, Nakayama, Fujimori and Yusa (2019b) examined whether JEFL learners can use the information of a reflexive in the infinitive that agrees with the matrix subject as in (17). By using the multiple-choice task, they found that learners did not seem to be able to use such information, either. These studies suggest that JEFL learners could not use gender morphology to help them understand the raised construction. The intervention effect is certainly real and seems very strong. Unlike the subject and object control structures, Japanese does not have a raised construction equivalent to the English one. This brings negative L1 transfer. That is, there is no A-movement forced by case-checking. (16a) can be like (18), where (18a) is L1 grammar while (18b) is L2

grammar, i.e., JEFL learners' interlanguage grammar. (19) shows the schematized operations that differentiate L1 and L2 raised constructions. As in (19a), the infinitive subject is copied at the matrix subject position and the original infinitive subject is deleted in L1 English grammar. This A-movement is forced by case-checking as the infinitive subject position is not a case-marking position. Because Japanese does not have this A-movement for case-checking, JEFL learners' grammar allows a base-generated subject, just like their L1 grammar. Because of this, this interlanguage grammar allows PPs to appear in the matrix subject position of the raised construction.

(18) a. $[_{TP1}$[The boy [seems to the girl $[_{TP2}$the boy [to like his English teacher]]]]]
(L1 grammar)
    b. $^{*}[_{TP1}$[The boy [seems $[_{TP2}$to the girl [to like his English teacher]]]]]
(JEFL learners' grammar)
(19) a. $[_{TP1}[DP_i$ [seems to DP_j $[_{TP2}$ DP_i [to VP]]]] $(i{\neq}j)$ (A-movement)   (Native speakers)
        ↑_____↓
            ([copy & deletion] case-checking)
    b. $[_{TP1}[DP_i$ [seems $[_{TP2}$ to DP_j [to VP]]]] $(i{\neq}j)$ (Base-generation)   (JEFL learners)
                (no A-movement for case-checking)

The lack of A-movement does not seem to apply only to the raised construction. It appears that it applies to passives as well. As Japanese has both direct and indirect passives, JEFL learners may be using the same base-generation operation for the passive subjects. If so, their interlanguage grammar may not have A-movement for case-checking as one finds in English. They need to acquire this A-movement operation for case-checking.

In sum, we conclude the following: (i) JEFL learners understand the EPP, (ii) the raising construction is difficult for them to acquire, (iii) their grammar is vulnerable to an intervention effect, (iv) they accept a PP as a matrix subject of the raised construction, and (v) their knowledge of passives seems unstable. Finally, we propose that JEFL learners' interlanguage grammar does not seem to have A-movement for case-checking. Due to negative L1 transfer, it allows matrix subjects to be base-generated in the raising and passive constructions. This proposal must be examined further by future research and it is important to find out what triggers JEFL learners to acquire A-movement for case-checking in their L2 English grammar.

Notes

[1] Object control sentences were also included, but they are not discussed here. Readers are referred to the original article for details.
[2] The study included Subject Control and *tough* constructions, but we are not reporting those results here. Readers are encouraged to see the original article.
[3] The study also included a sentence like *To him, Virginia seemed to be rich.* However, we do not discuss this construction here. Readers are referred to the original article.

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