

Developing Spoken Corpora of Non-Native English Teachers to Assist in English Classroom Interactions

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Abstract

This case study evaluates the characteristics of classroom speech found in classes taught by non-native elementary school English language instructors in Japan using corpora compiled by the authors. A corpus of spoken language was compiled from the lessons using XML tagging that marked speaker turns, language use, and classroom interaction modes. We then performed quantitative analyses on both L1 and L2 tokens in the corpus transcripts, which revealed that over 60% of utterances of the teachers measured by tokens were done in L2. We further analyzed teacher-student interactions in our corpus using five interaction modes to categorize the non-native English language instructors' L2 classroom discourse, four of which were introduced by Walsh (2006), and one by Ellis (1984). Analyzing the corpus in terms of the five interactional modes, we found several distinctive features. First, we note that explicit grammar-teaching by the teachers non-existent. Second, we noted that students speaking in the L2 in chorus while maintaining discourse with teachers. In the future, we plan to expand the corpus of classroom spoken data to make it large enough to justify inferences about elementary school English classes in Japan and to use video in conjunction with the corpus in teacher training. Developing such video classroom spoken corpora would hopefully assist both preservice and in-service elementary school teachers in their professional training programs, and eventually assist them in conducting English lessons, achieving their pedagogic goals more effectively.

Keywords: Classroom discourse, interactions, spoken corpora, teacher training

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1. Introduction

1.1 Background

Enabling English teachers in Japan, who are in most cases non-native speakers of English, to teach communicative English has been a key element in the English education reform plan of Japan's Ministry of Education, Sports, Science, Culture, and Technology (Hereafter, MEXT) proposed in 2013. One of the key concepts in the reform plan includes empowering teachers in elementary school because MEXT regarded the teacher empowerment as "vigorous promotion" for "constructing necessary frameworks for new English education" (MEXT, 2014a). Homeroom teachers (HRTs) at elementary school in Japan have started conducting English activities under the current course of study since 2011 (MEXT, 2010), and for them, conducting English activities in elementary schools caused a significant shock for HRTs because they were not required to learn English teaching methodology to obtain an elementary school teacher license. Thus, in this respect most of the HRTs were novice teachers of English regardless of how many years of teaching experiences they had.

According to the progress report by the MEXT (2014b, p. 18), 67.3% of the HRTs answered that their English ability was inadequate, and 60.8% of them answered preparing for the English language activity was cumbersome. In response, we recognize the need to implement teacher empowerment plans that enable in-service instructors to be better English language instructors. In the same progress report (MEXT, 2014b, p. 19), 74.6% of the HRTs answered that they needed professional development (called *kenshu*) to enable them to share specific classroom activities and to have opportunities to actually experience the sort of activities they want to implement. Moreover, the HRTs seek the skills to conduct English activities as shown in the responses that revealed 51.7% of them needed instructional skills and professional development for English activities (MEXT, 2014b, p. 20).

Thus, there arises a need to design a professional development program in order to empower HRTs to be able to teach English activities better. One of our major concerns is developing such a program. In order to achieve this, we need to select what facets to base our research on to create teacher training programs that enable substantially novice non-native English instructors to conduct English activities and lessons with confidence. To this end, we will first review the literature regarding studies on foreign language classroom discourse, and cite some of the findings that frame our research framework and will pose research questions in the following sections.

1.2 Prior Literature

Our literature review focuses: (a) English language skills and (b) skills for conducting English activities. (and then eliminate the next sentence as well). We will focus on these two perspectives to review the literature. We need to examine what language they use to conduct lessons and how they manage their classroom control in conducting English activities.

There are several ways to examine the language use of HRTs. One of the most common way is to record classes to obtain spoken evidence on video footage or audio file. Spada and Fröhlich (1995) developed a communicative orientation of language teaching (COLT) observation schemes. One of their schemes (COLT Part B) utilized the teacher student interactions found in the transcribed data. The use of spoken transcriptions can be applied to digitized data called language *corpus/corpora*. O'Keeffe, McCarthy, and Carter (2007) discussed building classroom corpora to provide data for quantitative and qualitative analysis. They argued that building classroom corpora “can offer a valuable supplement to published training materials” (p. 221). Classroom corpora will provide us quantitative data such as numbers of spoken tokens during the class as well as qualitative data that exist beyond counting numbers of words such as classroom discourse by the teacher and the students. The use of corpora therefore meets our two research purposes.

When we have built a classroom corpus, we will have evidence that will support developing HRT professional development. O'Keeffe and Farr (2003) stated that “by assessing and increasing their awareness of these modes (various modes of talk during the class period), teachers can improve classroom competence (p. 399). “

To classify the different types of talk in the transcript, we build on Walsh (2006)'s treatment of interactional patterns between teachers and students. He identified four interaction patterns, which he named *modes*: (1) *managerial* mode, (2) *classroom context* mode, (3), *skills and systems* mode, and (4) *materials* mode. We will detail these four modes when we explain the architecture of the classroom spoken corpus (Section 2.2).

It [*Mode*] is used to embrace the idea that interaction and classroom activity are inextricably linked, and to acknowledge that as the focus of a lesson changes, interaction patterns and pedagogic goals change too. A modes analysis recognizes that understanding and meaning are jointly constructed, but that the prime responsibility for their construction lies with the teacher (Walsh, 2006, p. 63).

However, he explained that there can be interactions that were rather difficult to define. He referred to such ambiguous interaction mode as “deviant cases” where mode switching or mode divergence were observed. Such classroom interactions sounded too ambiguous to be classified into one of the four modes (Walsh, 2006, pp. 82-91).

Ellis (1984) categorized the pedagogical goals of second language teaching into three major goals: framework goals, core goals, and social goals. Among these goals that second language teachers hold, the first two pertains to conducting lessons, and the third goal covers teacher-student interactions that contribute to building good rapport between the teacher and the students.

1.3 Research Questions

Based on the research objectives and review of the literature, we segment our research objectives into two aspects: (1) the quantitative aspect from actual classroom speech observed in interactions and discourse, and (2) the qualitative aspect which molds classroom discourse and is usually planned by the teacher, but (not surprisingly)

forced to change by unexpected interactions and responses not only by the students but also by the teacher. Thus, we pose the following two research questions in order to find out characteristics of these dual-axis structured classroom discourse:

1. What are the language use ratios (between English and Japanese) of homeroom teachers in elementary school EFL English lessons?
2. What kind of classroom interactions do homeroom teachers have in elementary school EFL English lessons?

2. Participants and Research Methodology

This section focuses on the participants of the research (Section 2.1), how we organized the collected data in the spoken corpus (Section 2.2), and analyzing procedure of the collected data in the corpus (Section 2.3).

2.1 Participants and Data Collection

The authors collected data from three English classes at an elementary school attached to a national university of education in Japan. We asked three homeroom teachers teaching Years 2, 3, and 4 respectively to allow us to record their English lessons, and they consented the study with submission of informed consent forms saying that they would permit us to use the recorded data in audio, video, and transcribed forms for academic purposes. We also agreed on maintaining anonymity of the HRTs and their students by using blurring the footage if the participant's identity was distinguishable in raw data. Table 1 shows the profile of the HRTs who contributed their English classroom data to this study.

Table 1
Profile of the Participants

Participant ID (Sex)	Year taught ^a	Number of students
1 (F)	2	31
2 (M)	3	29
3 (M)	4	31

Note. F=female. M=male. ^aElementary school years contain six years, for example, “Year 2” indicates the second year in elementary school.

2.2 Architecture of the Classroom Spoken Corpus

This section describes the architecture of the classroom corpus using the extensible mark up language (XML) on which we depend for our quantitative and qualitative analyses.

After recording the English classes, the speeches by the HRTs and the students were manually transcribed, and double-checked by the authors. Then, the authors annotated the transcriptions with the tags shown in Table 2 and Figure 1. Table 2 mainly depicts a tag set used for quantitative analyses, and Figure 1 shows a tag set for classroom interaction analyses. Figure 3 describe the corpus architecture shown in a tree diagram. Since the classroom discourse between a teacher and students usually constitutes a hierarchical structure, we based our corpus design partly on the classroom discourse

hierarchy proposed in Sinclair and Coulthrad (1975). Katagiri and Kawai (2016) applied this classroom discourse hierarchy, and created an XML schema for visually representing the classroom discourse structure used in a classroom spoken corpus. They used five classroom discourse elements that were hierarchically organized in the schema; lesson (the top element in a tree structure), transaction, exchange, move, and down to act (the bottom element in the structure). In this study, we focused on the transaction-exchange nodes where transactions contained exchanges between a teacher and students. Instead of using the term exchanges, we named this exchange node *interaction* following Walsh (2006).

Table 2
Corpus Tag Set for Speaker and Language Use

Category	Feature	XML representation	Description
Speaker	HRT	<hrt></hrt>	homeroom teacher
	ST	<st></st>	students (single)
	STS	<sts></sts>	students (multiple)
Media	CD	<cd></cd>	Compact disc
Language	L1	<j></j>	Japanese (first language)
	L2	<eng></eng>	English (target language)
	Mix	<mix></mix>	Mixture of L1 and L2
	TL2	<TL2></TL2>	L2 translated from L1

Note. XML= extensible markup language. HRT= homeroom teacher. ST= student. STS= students. L1=Japanese language. L2=English language. Mix= L1 and L2. TL2=translated L2.

• **Adapted from Walsh (2006)**

<interaction mode="**skills and system**">:

Correct forms / provide corrective feedback → particular language items, vocabulary or specific skill

<interaction mode="**managerial**">:

Declarative / explanation / confirmation → setting up an activity

<interaction mode="**materials**">:

Interactive / elicit responses / provide language practice → the use of text, tape or other materials

<interaction mode="**classroom context**">:

Content feedback / referential questions / → eliciting feelings, attitudes and emotions of learners

• **Adapted from Ellis (1984)**

<interaction mode="**social**">:

Communicative acts → social or private matters irrelevant to the pedagogical goals

Figure 2. Attributes represented in an XML format for classroom interaction used in the corpus. The attribute values are double-quoted and shown in boldface. The top four attributes are adapted from Walsh (2006), and the final attribute is from Ellis (1984).

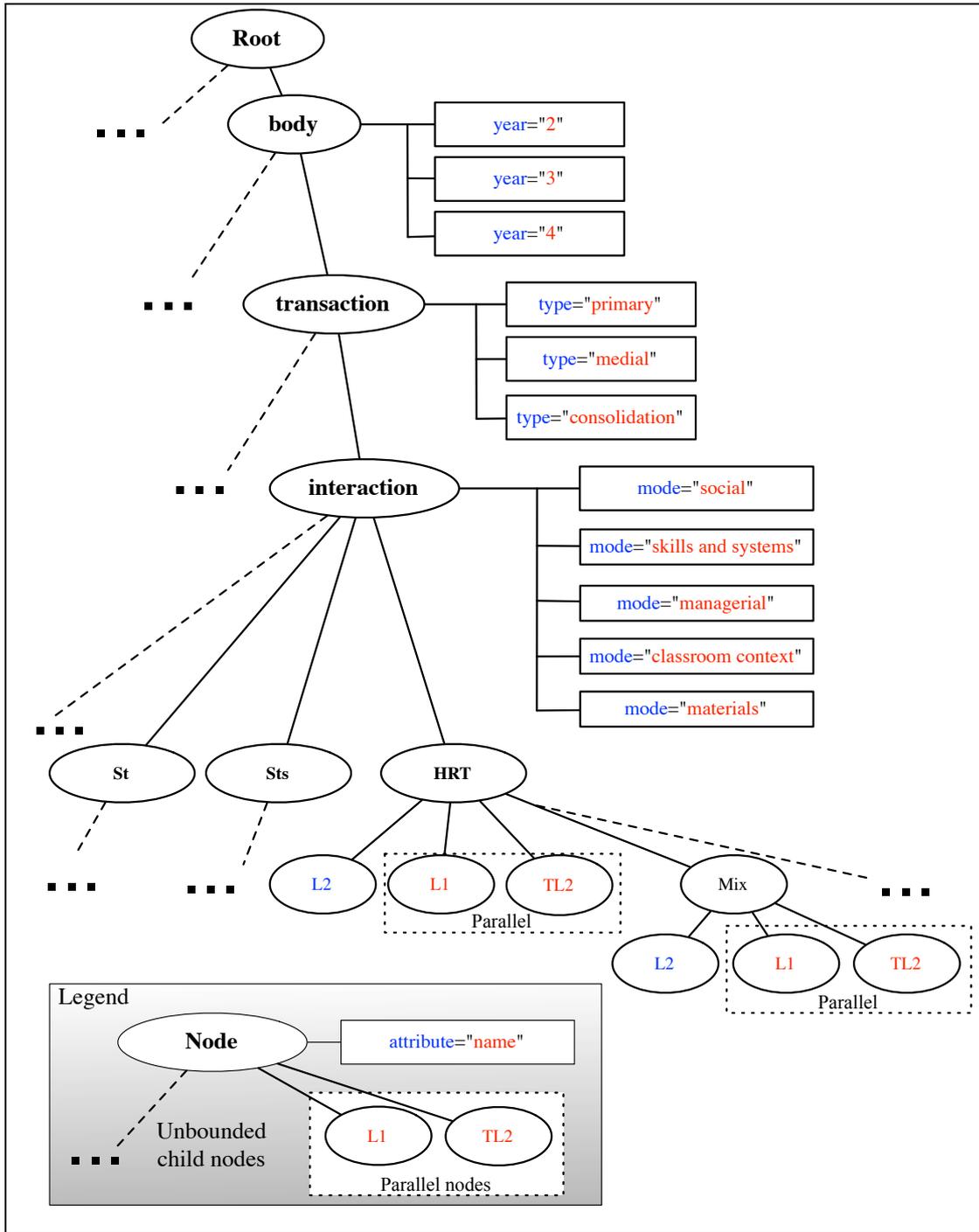


Figure 3. Architecture of the corpus illustrated in a tree diagram.

2.3 Data extraction

This section first shows how we utilize the corpus data through extracting the XML elements with XML transformation (XSLT) style sheets using XML path (Section 2.3.1), and then explains how to count the extracted data (Section 2.3.2).

2.3.1 XSLT

After compiling a classroom spoken corpus, we quantified the L1 and the L2 utterances, and interaction modes through XSLT style sheets. Figure 4 illustrates a sample XSLT style sheet which extracted the aimed utterances from the corpus. We adjusted the XML Path Language (XPath) in the XSLT style sheets so that we would be able to retrieve (1) language use count: exclusive L1 and L2, and the L1 and L2 in the mixture of these two language types, and (2) interaction mode count.

```
1 stylesheet template[/]
2 <?xml version="1.0" encoding="UTF-8"?>
3 <!-- New document created with EditiX at Mon Feb 01 18:13:55 JST 2010 -->
4
5 <xsl:stylesheet version="1.0" xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
6
7   <xsl:output method="text" indent="yes" encoding="UTF-8" omit-xml-declaration="yes" />
8
9   <xsl:template match="/" >
10
11     <xsl:copy-of select="root/body[@year='2']/transaction/interaction/hrt/mix/eng"></xsl:copy-of>
12
13   </xsl:template>
14
15 </xsl:stylesheet>
16
```

Figure 4. XML transformation to extract utterances based on elements and attributes. Line 11 shown in the right column shows an XPath that leads to the aimed utterances. In this case, Year 2 class shown as “body[@year='2']” node has descendant node of English utterances shown as “eng” in the mixed utterances (“mix”) of L1 and L2 that the homeroom teacher “hrt” spoke in the “interaction” elements classified in “transaction” elements. By designating the year numerals as ‘3’ and ‘4’ and specifying the language node such as “mix/eng,” “eng,” and “j,” the XPath leads to the specified utterances spoken in a specified language.

2.3.2 Counting Extracted Tokens

Spoken tokens were calculated by using Perl scripts.¹ As for the Japanese tokens, we used *SegmentAnt*² to divide Japanese sentences into segmented tokens so that we would be able to run the segmented utterances on our Perl scripts.

3 Results and Analyses

3.1 Annotated Transcriptions in the Compiled Classroom Corpus

Figure 5 shows a corpus transcription sample in the compiled corpus. Each XML element is shown with a start tag < > and the corresponding end tag </>. The descendant nodes are offset for easy viewing. Other than the tags shown in Table 2, unintelligible utterances <incomp/> are inserted with a time stamp shown as <incomp time =”X:YY”/>. To the L1 (Japanese) utterances shown in <j></j>, their English translation was added as <TL2></TL2>.

```

2537 <body year="4">
2538 <transaction type="primary">
2539 <interaction mode="social">
2540 <hrt> <eng>Are you hot? Are you hot?</eng></hrt>
2541 <st> <eng>No.</eng></st>
2542 <sts> <eng>Yes.</eng></sts>
2543 <st> <eng>Hot.</eng></st>
2544 <incomp time="4:42-4:44"/>
2545 <hrt> <eng>I'm hot. I'm hot.</eng></hrt>
2546 <hrt> <eng>You are hot. </eng></hrt>
2547 <st> <eng>You are hot. </eng></st>
2548 <hrt> <eng>You are hot, you are hot, you are hot, ah, you are hot, no, you are hot.</eng></hrt>
2549 <hrt> <eng>I'm hot, too. I'm hot, too.</eng></hrt>
2550 <hrt> <eng>Who is cold?</eng></hrt>
2551 <sts> <j>えー。</j><TL2>Eh!</TL2></sts>
2552 <st> <j>暑いじゃん。</j><TL2>It's hot in here, isn't it?</TL2></st>
2553 <hrt> <eng>Oh, you're cold, you're cold.</eng></hrt>
2554 <hrt> <eng>Ah, you are cold, you are cold, you are cold, you are cold.</eng></hrt>
2555 <st> <j>暖かい。</j><TL2></TL2></st>
2556 <hrt> <eng>You are cold, you are cold.</eng></hrt>
2557 <hrt> <eng>I'm not cold, I'm not cold.</eng></hrt>
2558 <hrt> <eng>Who is sleepy?</eng></hrt>
2559 <hrt> <eng>You are sleepy, you are sleepy, oh, you are sleepy, you are sleepy.</eng></hrt>
2560 <hrt> <eng>I'm not sleepy, I'm not sleepy.</eng></hrt>
2561 <st> <j>いや嘘だ、だって。</j><TL2>No, that's not true.</TL2></st>
2562 <hrt> <eng>I'm not sleepy.</eng></hrt>
2563 <sts> <j>寝てないって言ってたじゃん先生。</j><TL2>You said you did not enough sleep, didn't you?</TL2></sts>
2564 <hrt> <j>言わないのそれ。</j><TL2>Don't tell it to anyone.</TL2></hrt>
2565

```

Figure 5. Corpus transcription sample.

3.2 Language Use Count of HRTs and Students

Tables 3 and 4 show the spoken token count of L2 and L1. These two tables have basically the same data quantification sets except for the language; the L2 count summary in Table 3, and L1 count summary in Table 4. The data sets in these two tables will provide the language use ratios (L2/L1) of the participants (Figures 6 and 7).

Table 3
L2 (English) Spoken Token Count in the Corpus

Year	HRT		Single student ^a		Students ^b	
	Exclusive	Mixed	Exclusive	Mixed	Exclusive	Mixed
2	1708		74		472	
	1595	113	74	0	472	0
3	2401		9		145	
	2288	113	7	2	145	0
4	2567		312		626	
	1369	1198	152	160	626	0
Σ	6676		395		1243	
	5252	1424	233	162	1243	0
<i>M</i>	2225.3		131.7		414.3	
	1751	475	78	54	414	0

Note. The total spoken token count is shown in boldface. The breakdown of the token count is shown in the two cells below (in the exclusive utterances and the mixed-language utterances) the total count. Year=elementary school year. HRT=homeroom teacher. English spoken tokens were calculated by English tokens spoken in exclusive English speech added to the ones in utterances composed of mixture of English and Japanese. ^aA “single student” indicates one students involved in interactions with the HRT. ^b“Students” represent mostly students speaking in chorus.

Table 4
L1 (Japanese) Spoken Token Count in the Corpus

Year	HRT		Single student		Students	
	Exclusive	Mixed	Exclusive	Mixed	Exclusive	Mixed
2	972		800		58	
	872	100	800	0	58	0
3	1101		85		13	
	912	189	79	6	13	0
4	915		152		31	
	509	406	97	55	31	0
Σ	2988		1037		102	
	2293	695	976	61	102	0
<i>M</i>	996.0		345.7		34.0	
	764	232	325	20	34	0

Note. The total spoken token count is shown in boldface. The breakdown of the token count is shown in the two cells below (in the exclusive utterances and the ones in the mixed utterances) the total count. Year=elementary school year. HRT=homeroom teacher. Japanese spoken tokens were calculated by Japanese tokens spoken in exclusive Japanese speech added to the ones in utterances composed of mixture of English and Japanese.

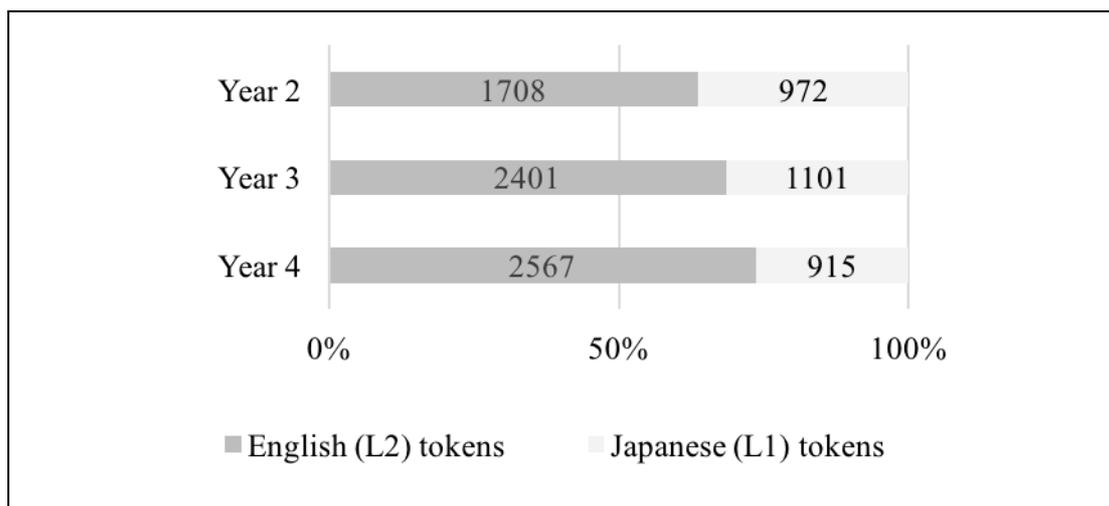


Figure 6. L2/L1 ratios of HRTs in the compiled spoken corpus.

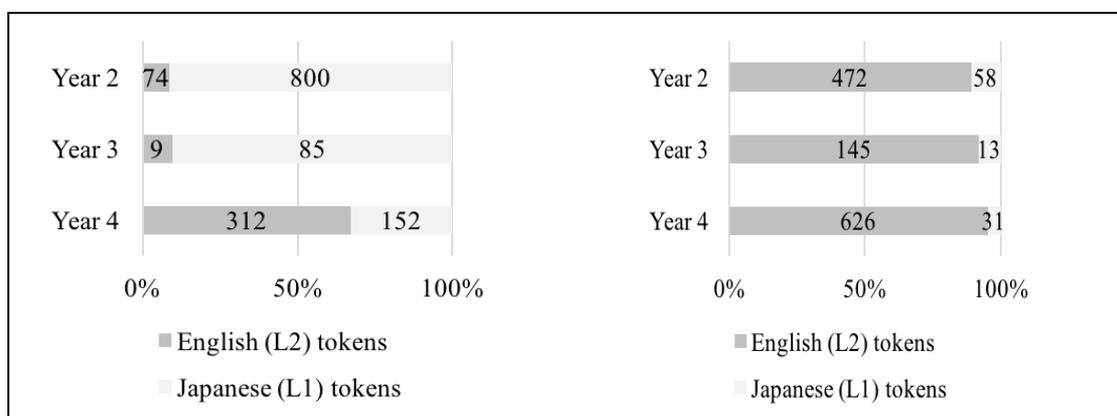


Figure 7. L2/L1 ratios of *student* (left) and *students* (right) in the compiled spoken corpus.

We can identify two major characteristics in the language use of the HRTs and the students. Firstly, the HRTs displayed more L2 usage than L1 with the the mean value of L2:L1=2225.3:996.0, which indicates that the HRTs used over 2.2 times more L2 than L1. Thus, we can see that the elementary school HRTs whom we observed exposed their students to the target language over twice as much as their native language.

Next, we will consider the language use of the students. Tables 3 and 4 contrast the use of the L1 and L2 of the elementary school students. Utterances by *individual students* contained far more L1 tokens than those observed in the utterances by *students* in chorus, and conversely, *students* in chorus displayed far more L2 utterances than those by *individual students*. These results indicate that, on the one hand, the elementary school students in this study are more likely to utter L2 in chorus than in the interaction with the HRT. On the other hand, they use far more L1 in individual interactions with the HRT. This suggests that in elementary school classroom, the L1 are more likely to be used in teacher-student interactions, whereas the students are mainly learning from the HRTs' L2 output and using the L2 to speak in chorus. The next section will discuss the interaction mode occurrences that explain these results.

3.3 Interaction Mode Occurrences

Based on the quantitative data and their analyses, this section describes qualitative analyses to explain the language use in the elementary school English classroom.

Table 5 shows interaction mode occurrences controlled by the HRTs. The distribution of each mode illustrates interactional characteristics of the elementary school English classes we observed. Materials mode attracted the most attention, but hardly any skills and systems mode due mainly to absence of explicit grammar teaching. The absence of grammar teaching is explainable, because neither the current nor the next MEXT course of study encourage the teaching of English grammar in the elementary school Years 4 and below. Instead, they state that the main purpose of teaching English is to “foster a positive attitude toward communication” (MEXT, 2010, para. 1).

Table 5
Interaction Occurrences by Modes^a

Year	Interaction mode					Σ
	Social	Managerial	Materials	Classroom context	Skills and systems	
2	0	9	8	2	0	19
3	38	11	54	12	0	115
4	3	7	16	12	0	38
Σ	41	27	78	26	0	172
<i>M</i>	13.7	9.0	26.0	8.7	0.0	57.3

Note. ^aThe first interaction mode is adapted from Ellis (1984), and the other modes are adapted from Walsh (2006).

4 Discussion and Conclusion

The classroom spoken corpus we compiled for this study yielded quantitative and qualitative results that shed light on elementary school English classes in Japan. The classroom spoken corpora found:

1. HRTs in the classes included in the corpora used more L2 than L1, and the L2 was more likely to be used by the students in chorus.
2. Interaction analyses based on the *interaction modes* between the HRTs and the students showed that the HRTs generally incorporated the *managerial mode*, and utilized the L2 in the *materials mode*. However, the use of *social mode* depended on the HRT.

These findings gave us the evidence necessary to answer the research questions.

4.1 Answers to the Research Questions

This section discusses answers to the two research questions we posed (Section 1.3). Since the current research is one case study using limited number of participants, it might not be appropriate to generalize these answers to all cases. However, the answers will give us perspectives how we should continue to accumulate classroom spoken data in elementary school English in an EFL setting.

4.1.1 *What are the Language Use Ratios of Homeroom Teachers in Elementary School EFL English Lessons?*

Focusing on the L2 use, the language use ratios of the three HRTs turned out to be 63.7% for Year 2, 68.5% for Year 3, and 76.3% for Year 4, with the average ratio being 69.5% (Tables 3 and 4, Figure 6). No matter what year the HRTs were teaching, they utilized more than 60% of their spoken tokens speaking English. It may be suggested that the higher the grades the HRTs teach, the more English they speak. A similar tendency was observed in the *students'* language use, with the L2 ratios much higher, around 90% for Year 2 and over 90% for Years 3 and 4 (Figure 7).

4.1.2 *What Kind of Classroom Interactions do Homeroom Teachers Have in Elementary School EFL English Lessons?*

Our data clearly indicate the absence of one of the five interaction modes, i.e., *skills and systems* mode (Table 5). We observed no occurrences of this interaction mode. We believe this was due to the nature of instruction stipulated in the course of study discussed in Section 3.3. The HRTs conducted lessons such that they had interactions in the *materials* mode, in which they provided the L2 materials and elicited responses, and in the *classroom context* mode, in which they gave feedback on contents of the L2 materials, and asked referential questions. These results might indicate that the HRTs were trying to incorporate interactions that were close to those in the other regular elementary school subjects while at the same time, trying to give L2 exposure to the students. It was also natural that we witnessed *managerial* modes in all the Years we observed because in this interaction mode the HRTs explained activities in class and

confirmed the students' understanding, which we assume that HRTs also routinely do in their other regular classes.

4.2 Implications for Pedagogy

Our study data also enables us to partially characterize changes in usage ratio of L2 as we move from Year 2 to Year 4 in elementary school English in an EFL setting. These findings could be utilized not only for linguistic research purposes but also for teacher training. The compiled corpus data would give evidence to show approximately at what L2/L1 ratio HRTs would adjust the language use, sometimes code-switching from L1 to L2 or vice versa. General distribution of the interactional modes might give other HRTs clues to organize type of interactions that they would need to select depending on their pedagogic goals. At a basic level of elementary school English, HRTs can maintain presumably their regular lesson interactional patterns (coded as *managerial* and *classroom context* modes) and still provide linguistic exposure and practice as shown in the occurrences in *materials* mode (Table 5). The HRTs can utilize over 60 % of their utterances using the L2. The percentage of the HRTs L2 use increases as the school grades increase. Similarly, the students' usage of L2 also displayed an incremental increase correlated with grade; although the students in our study were not the same ones observed in three consecutive years. We can propose

4.3 Limitations

The authors are aware of at least two limitations to this study. This research is merely a case study, so we need to increase the amount of classroom data so that findings to produce better generalizations regarding the elementary school English classroom. As Seedlehouse (2004) put it, "classroom research into communication in both L1 and L2 classrooms has considered between five and ten lessons a reasonable database from which to generalize conclusions" (p. 87). Walsh (2006) summarized the study of Seedlehouse and said, "approximately 12 hours or 100,000 words, a reasonable sample size on which to make generalizations and draw conclusions in the light of evidence from previous studies" (p. 63). Judging from these standards, our research needs more than four times as many lessons, and over 10 times as many tokens as the present study.

The second limitation is the quality of the L2 spoken tokens. The data in our compiled corpus showed quantitatively that HRTs primarily used L2. We need to qualitatively examine the types/indices of the spoken L2 tokens by lemmatizing them because we need to analyze the similarities as well as the exclusivity of the L2 usage depending on the grades the HRTs taught, enabling us to propose generalizations about the L2 use. If we could recognize certain similarities in the lemmatized tokens, we would be able to propose general use patterns of L2 to novice HRTs for their professional development and to preservice HRTs on their teacher training courses.

4.4 Future plans

We will conclude our paper by describing our two future research plans based on the discussions in the preceding three sections. The first and urgent plan is to collect more English classroom data to compile a decent classroom spoken corpora. As O'Keeffe,

McCarthy, and Carter (2007) put it, “a teacher corpus is something small and evolving over time” (p. 220). When the accumulated data is large enough, it will be made into a classroom video corpus by aligning the video footage with captions tagged with the interactional modes and transcriptions in subtitles. Currently we are developing this video corpus (Figure 8). At the current moment, however, it is still merely a mockup. We are planning to train HRTs through this video corpus and to examine effectiveness of the corpus in teacher empowerment when we complete compiling this classroom video corpus.

The second plan is to analyze the relationship between instructor utterances and the students' uptake since we found that there is an incremental tendency in the quantitative amount of spoken tokens of the HRTs and the students. One case study, conducted by Ohashi & Katagiri (2016), revealed explicit instructions for the students to learn the content of the materials such as English words and phrases including sounds were likely to elicit more student responses than implicit instructions.

We sincerely hope that our attempt to compile classroom spoken corpora by accumulating elementary classroom English class data followed by quantitative and qualitative examination of the data as well as interaction mode analyses will be of significant help to many in-service elementary school HRTs (whether they are novices or not) in their professional development programs and to preservice elementary school teachers as a part of their teacher training education. We believe that these teachers will develop primary English education in the years to come.

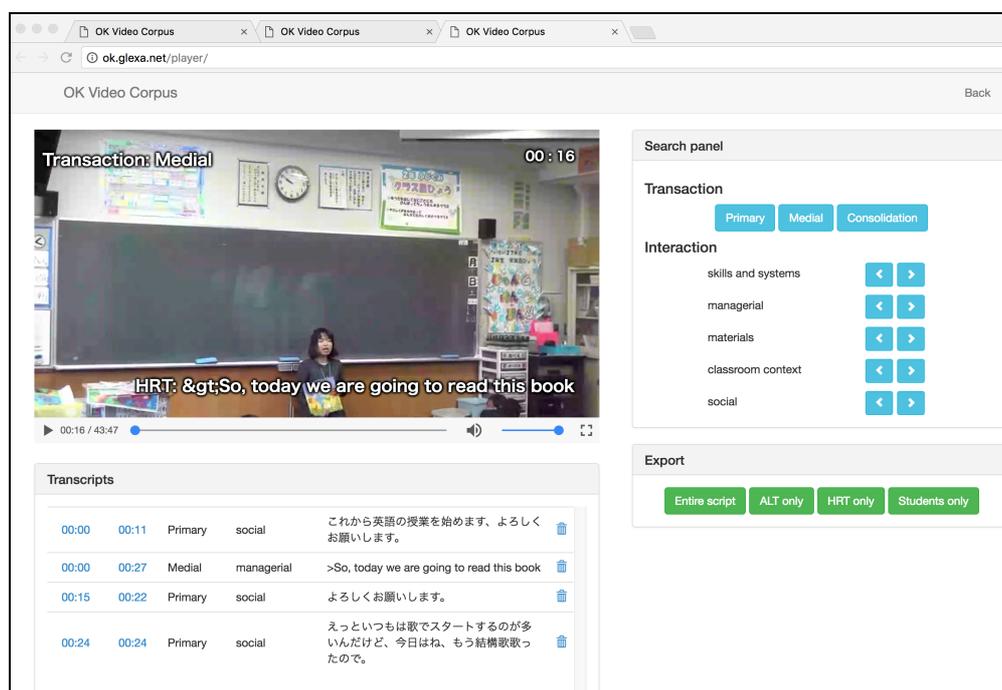


Figure 8. Classroom video corpus mock up. The video corpus consists of four windows viewable on a web browser; a footage window with meta information such as transaction mode, elapsed time, and subtitles (top left), a transcript window showing duration of the transcripts with discourse columns (bottom left), a search panel window with buttons enabling the viewer to move to desired transactions and interactions (top right), and export window that exports transcriptions by speaker (bottom right). The footage window shows an HRT beginning her English lesson (the students are out of the camera range to protect their privacy).

Notes

1. Perl scripts were created by the authors. The scripts were run on the “terminal” platform on OS X (10.11.6).
2. SegmentAnt (Version 1.2.0 for Macintosh OS X) is a downloadable free computer software on Laurence Anthony’s Website. Retrieved from <http://www.laurenceanthony.net/software.html>.

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Appendix A. XML Schema of the Elementary School English Classroom Spoken Corpus: Classroom Discourse Tags

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="root">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="body" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>

  <xs:element name="body">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="transaction"
maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:attribute name="year" type="xs:string" use="required"/>
    </xs:complexType>
  </xs:element>

  <xs:element name="transaction">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="incomp" minOccurs="0"/>
        <xs:element ref="interaction"
maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:attribute name="type" type="xs:string" use="required"/>
      <xs:attribute name="id" type="xs:string"/>
    </xs:complexType>
  </xs:element>

  <xs:element name="interaction">
    <xs:complexType mixed="true">
      <xs:sequence>
        <xs:element ref="hrt" minOccurs="0"
maxOccurs="unbounded"/>
        <xs:element ref="incomp" minOccurs="0"/>
        <xs:element ref="st" minOccurs="0"
maxOccurs="unbounded"/>
        <xs:element ref="sts" minOccurs="0"
maxOccurs="unbounded"/>
      </xs:sequence>
      <xs:attribute name="mode" type="xs:string" use="required"/>
    </xs:complexType>
  </xs:element>
```

Appendix B. XML Schema Samples of the Elementary School English Classroom Spoken Corpus: Speaker and Language Use Tags

```
<xs:element name="hrt">
  <xs:complexType mixed="true">
    <xs:sequence>
      <xs:element ref="incomp" minOccurs="0"/>
      <xs:element ref="mix" minOccurs="0"/>
      <xs:element ref="eng" minOccurs="0"/>
      <xs:element ref="j" minOccurs="0"/>
      <xs:element ref="TL2" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="overlap" type="xs:string"/>
  </xs:complexType>
</xs:element>

<xs:element name="sts">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="eng" minOccurs="0"/>
      <xs:element ref="j" minOccurs="0"/>
      <xs:element ref="TL2" minOccurs="0"/>
    </xs:sequence>
    <xs:attribute name="overlap" type="xs:string"/>
  </xs:complexType>
</xs:element>

<xs:element name="TL2" type="xs:string"/>
<xs:element name="mix">
  <xs:complexType mixed="true">
    <xs:sequence>
      <xs:element ref="j" minOccurs="0"/>
      <xs:element ref="TL2" minOccurs="0"/>
      <xs:element ref="eng"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

<xs:element name="eng">
  <xs:complexType mixed="true">
    <xs:sequence>
      <xs:element ref="j" minOccurs="0"/>
      <xs:element ref="TL2" minOccurs="0"/>
      <xs:element ref="incomp" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>

</xs:schema>
```