



A Comparison of English Textbooks of Iran, Japan, and Sri Lanka by Correspondence Analysis

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Abstract: This paper explores the differences of the English textbooks for the seventh graders in Iran, Japan, and Sri Lanka in Asia. Specifically, the seventh graders' textbooks were analyzed using a readability tool and Correspondence Analysis (hereafter, CA). An analysis of the data suggests that, in terms of readability and content, there were both similarities and differences between the three textbooks. More precisely, regarding readability, the English textbook of Japan is closer to the level of English textbook of Iran, but the level of textbook of Sri Lanka is much higher than the other two textbooks. Also, concerning the content including vocabulary, CA shows that basically the three textbooks are different from each other.

Keywords: correspondence analysis, readability, English textbooks.

INTRODUCTION: EARLIER RESEARCH

With respect to readability, English educators tend to utilize Flesch Reading Ease or Flesch Kincaid Grade Level, both of which are very commonly used as useful indices to measure the difficulty of English texts. However, these readability tests were produced mainly on the basis of the number of words and length of sentences, and they need to be adapted for use with English textbooks approved by the Japanese Ministry of Education because such textbooks feature specially sequenced grammar and vocabulary content. Therefore, the development of useful readability tools began in Japan, taking into consideration the content of English textbooks [1] [5]. The most recent readability test, Fukui-Ozasa Year Level (Ver. 3.5nhnc1-6), was developed in 2016, based on textual data of EFL textbooks for junior and senior high schools in Japan.

Regarding the linguistic research using Correspondence Analysis (CA), there have been few research papers in which the obtained data were analyzed and discussed based upon statistical analysis. One important research paper, [5], serves to quantitatively re-evaluate EFL experts' judgment from a different angle on three sets of current EFL textbooks by using CA. Results of the analysis confirm the qualitative empirical judgment made by the experts. It was found that on the first dimension of a CA analysis map, *Discovery* was distant from *Prominence* while *Crown* was somewhat close to *Prominence*, which is explained by the category of 'natural vs. controlled structure.' On the second dimension of the map, it was also shown that *Crown* was distant from *Prominence* while *Discovery* was close to *Prominence*, which is explained by the category of 'focused vs. less-focused discourse'. These findings support the experts' intuitive judgment that *Discovery* is different from the other two textbooks and that it should be excluded from the source of criterion sentences.

Another CA-related study analyzes five Japanese EFL textbooks using CA (Ozasa, Kawamura, Umamoto, and Matsuoka, 2018). The results of the analysis revealed that the five textbooks could be explained by the four dimensions of the discourse: (1) natural vs. drilled-centered, (2) easy vs. difficult, (3) focused vs. unfocused and (4) varied vs. single practice. All of their features were made evident in radar-graph consisting of all the four dimensions.

Besides, another CA-related text analysis is done by using the four texts (in the original teaching materials [7]). Results of the analysis show that there are similarities and differences among the four texts. Specifically, the CA map shows that on the first dimension, Vietnam was distant from Thailand while the other two texts were midway between both texts. The difference was explained by the category of 'nature-created vs. human-created'. On the second dimension, *Thailand* and *Vietnam* were distant from *Florida* and *Canada*. The difference was described by the category of 'business negotiating vs. less-business negotiating'.

Also, the four texts from business English and the original speaking textbook were analyzed and discussed using CA [8]. As a result, the CA map shows that on the first dimension, *Speaking 1* and *2* were distant from *Writing 1* and *2*. The difference was described by the category of 'travel-centered vs. business-centered'. On the second dimension, *Speaking 2* was distant from *Speaking 1*, while the other two texts were midway between both texts. The difference was explained by the category of 'academic vs. less academic'.

In addition, the fifth graders' textbooks of *China*, *Myanmar*, and *Sri Lanka* were analyzed and discussed through CA [9]. The CA map shows that on the first dimension, *China* was distant from the other two textbooks, *Myanmar* and *Sri Lanka*. The difference was explained by the category of 'pleasurable life-oriented vs. less pleasurable life-oriented'. On the second dimension, *Sri Lanka* was distant from *Myanmar*. The difference was described by the category of 'connection-oriented vs. less connection-oriented'.

Furthermore, the seventh graders' Japanese textbooks of *New Crown*, *New Horizon*, and *Sunshine* were analyzed and discussed through CA [10]. The CA map shows that *Sunshine* was distant from *New Crown* on the first dimension, and it is also distant from *New Horizon* on the second dimension. As a result, the difference was explained by the category of 'natural discourse-focused vs. less natural discourse-focused' on the first dimension, and on the second dimension the difference was described by the category of 'skill-organized vs. less skill-organized'.

When it comes to text analysis, only recently the significance of the specific method to classify the texts, using CA is shown [2]. In order to distinguish between normal CA and their CA tool to analyze texts, they call it Textual Analyses with Correspondence Analysis.

OBJECTIVES

The present paper has two aims: The first aim is to explore the readability of the seventh graders' English textbooks of three countries: *Iran*, *Japan*, and *Sri Lanka*; the second aim is to explore the similarity / dissimilarity of the three textbooks by using CA. Particularly, focusing on the textbooks of the countries introduced in class, the readability and the results

of CA are compared and discussed. The following are the research questions in the present paper:

- (1) Are there differences among the three textbooks regarding readability?
- (2) What kind of dimension explains the similarity / difference among the three textbooks?

METHOD

The present study employed the readability test and a one-way CA for the purpose of exploring the relationships among the three nominal variables, i.e., *Japan*, *Iran*, and *Sri Lanka*. Regarding readability, as mentioned above, in this research an original readability tool, Fukusi-Ozasa Year Level (Ver. 3.5nhnc1-6), which has been developed by Japanese researchers, is utilized to explore the difficulties of the three textbooks. The commonly known readability tools, Flesch Reading Ease and Flesch Kincaid Grade Level, are not used.

Also, in a bid to clarify the relationships among the texts, CA is utilized in this research. CA is a data reduction procedure like factor analysis, and basically describes the relationships among the three nominal variables (texts) while simultaneously describing the relationships between the nominal categories (dimensions) for each variable.

In this analysis, first, a cross tabulation table of the three texts was prepared as a basic datum for the present CA, using three text corpora, *Japan*, *Iran*, and *Sri Lanka*. This is essentially a cross-textbook word-frequency table made by using the word-frequency data of the three text corpora computed, using AntConc, a vocabulary processing tool. In this frequency table the most frequent 100 content words were picked up from the frequency list after deleting function words and proper nouns, and their frequency values were placed for each of the three textbooks. (Since three kinds of 100-word lists were incorporated into one cross-text word-frequency table, the number of words of the cross-tabulation table was more than 100.).

RESULTS AND DISCUSSION

Research Question 1

In this section Research Question 1: *Are there differences among the three textbooks regarding readability?* is discussed. By using the readability tool, Fukui-Ozasa Year Level, Ver.3.5nhnc1-6, the readability of the three textbooks is measured and discussed.

As shown in Table 1, the year-level readability of the textbook of *Sri Lanka* is the highest among all three textbooks. This means that *Sri Lanka* is the most difficult of all these textbooks. The second most difficult textbook is *Japan*, but the two textbooks, *Japan* and *Iran* have almost the same difficulty regarding their readability. Judging from the year level corresponding to the readability, the textbooks of *Japan* and *Iran* are equivalent to the level of English textbook which junior high school students (Freshmen) in Japan use. On the other hand, the textbook of *Sri Lanka* is equal to the level of the textbook for seniors in junior high school.

Table 1: Readability of each textbook.

Country	Mean	Y. level
Sri Lanka	2.99	3.41
Iran	2.02	1.64
Japan	2.25	1.98

Research Question 2

In this section, Research Question 2: *What kind of dimension explains the similarity / difference among the three textbooks?* is discussed. As mentioned in the former section, the target textbooks are from three countries: *Iran*, *Japan*, and *Sri Lanka*. The texts are analyzed using CA, and the data results are discussed.

Table 2: Readability of each textbook.

	<i>1st Dimension</i>	<i>2nd Dimension</i>
<i>Eigenvalue</i>	0.342	0.273
<i>Correlation</i>	0.585	0.522
<i>Contribution rate</i>	0.556	0.444
<i>Cumulative contribution rate</i>	0.556	1

Table 2 shows the statistics of the present CA, i.e., the eigenvalues, coefficient correlations, contribution rates and cumulative contribution rates of the analysis. As the contribution rates indicate in Table 2, the relationships among the three nominal variants (texts) are explained 55.6% by the 1st dimension and 44.6% by the 2nd dimension. This means that the first dimension is a little more powerful in explanatory power than the second one.

Table 3 shows the points of the two dimensions as a summary of the relationships among the three variants. As in Table 3 and Figure 1, on the first dimension, *Iran* is located on the high plus side of the first dimension (2.172), while *Sri Lanka* (-0.557) and *Japan* (-0.341) are located on the minus side of its dimension.

Concerning the description of dimensions that best explains the similarity / difference among the three textbooks, on the first dimension, *Iran* (2.172) is much higher in points than *Sri Lanka* (-0.557) and *Japan* (-0.341) by 2.729 and 2.513 points, respectively.

Table 3: Readability of each textbook.

	Group	<i>1st Dimension</i>	<i>2nd Dimension</i>
Sri Lanka	Column	-0.557	-0.981
Iran	Column	2.172	-0.214
Japan	Column	-0.341	1.213

The difference between *Iran* and the other two textbooks, *Japan*, and *Sri Lanka* on the first dimension could best be explained by the category of 'personal interaction-oriented vs. less personal interaction-oriented'. In the textbook of *Iran*, personal contents are

offered in all lessons such as ‘Lesson 2 My classmates’, ‘Lesson 4 My family’, and ‘Lesson 6 My house’. Regarding vocabulary, the interaction-related words such as ‘conversation’, ‘ask’ and ‘talking’ are used more frequently in the other textbook of *Sri Lanka* and *Japan*. Also, in the textbooks of *Sri Lanka* and *Japan* the content as well as the vocabulary related to interaction is not described so frequently compared to the textbook of *Iran*. Therefore, the first dimension was termed ‘personal interaction-oriented vs. less personal interaction-oriented’.

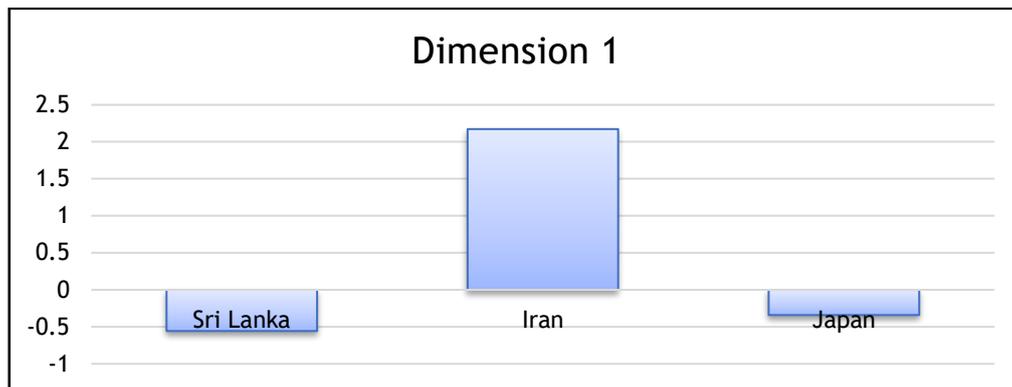


Figure 1: Weighted Points on Dimension 1

On the second dimension, as is clear in Table 3 and Figure 2, Japan (1.213) is located on the high plus side of the second dimension, while Sri Lanka (-0.981) is located on the low minus side of its dimension. When described in more detail, the textbook (Japan) is located on the plus side of the dimension, distant from Sri Lanka (-0.981) by 2.194 points, while Iran (-0.214) is around the middle of the other two textbooks. The difference between Japan and Sri Lanka could best be explained by the category of ‘phased learning-conscious vs. less phased learning-conscious’. In the content and vocabulary of the textbook of Japan, step-by-step learning is often carried out. On the other hand, in the textbook of Sri Lanka, it seems that gradual learning is not consciously implemented, compared to the textbook of Japan. For this reason, y-axis is named ‘phased learning-conscious vs. less phased learning-conscious’.

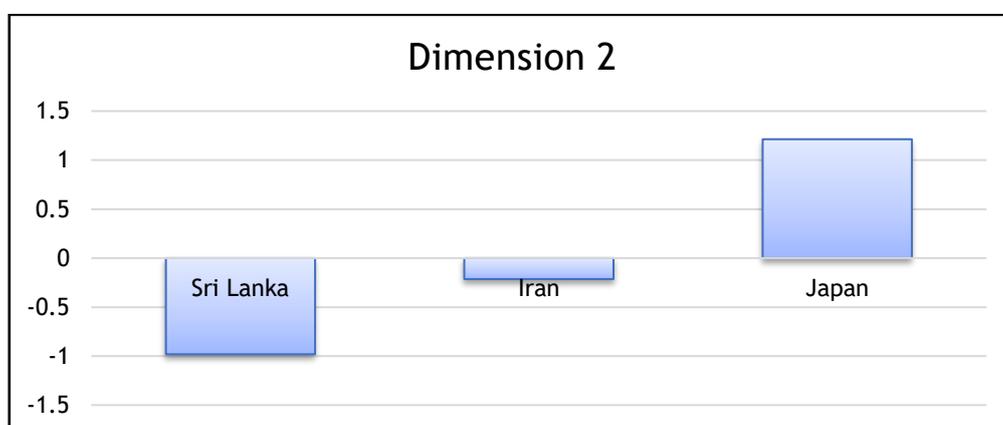
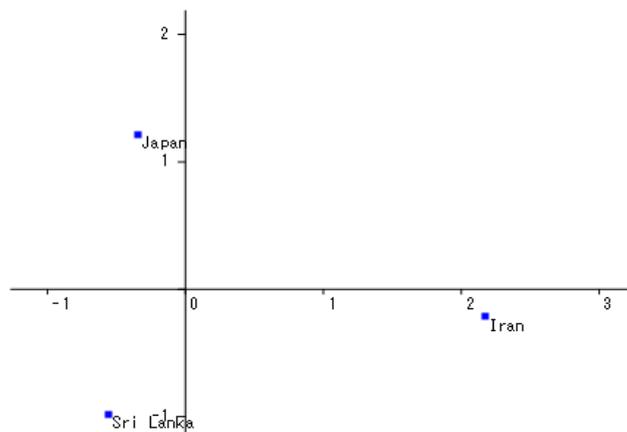


Figure 2: Weighted Points on Dimension 2

It will be impossible to clarify the meaning of the dimensions (the x-axis and y-axis) in Figure 3, without a detailed and critical examination of their contents concerning the similarity / dissimilarity of the three textbooks. Therefore, based upon the results gained through this CA and the textbook contents, it is necessary to confirm the meaning of the dimensions.



x-axis: 'personal interaction-oriented vs. less personal interaction-oriented' y-axis: 'phased learning-conscious vs. less phased learning-conscious'

Figure 3: Biplots on CA Map of Three Textbooks

Table 4: Top 20 Words of Dimensions 1 and 2

	Dimension 1 Word		Dimension 2 Word	
1	talking	3.556	stage	2.324
2	conversation	3.337	step	2.324
3	student	3.045	hana	2.324
4	ask	2.384	wakaba	2.324
5	name	2.226	tennis	2.168
6	friend	2.056	point	2.069
7	teacher	1.89	bank	2.057
8	practice	1.728	music	1.942
9	old	1.717	play	1.675
10	check	1.688	enjoy	1.455
11	sounds	1.646	part	1.444
12	say	1.444	mark	1.39
13	English	1.312	tomorrow	1.329
14	doing	1.275	talk	1.189
15	listen	1.051	get	1.183
16	answer	0.947	words	1.005
17	talk	0.679	sounds	0.906
18	drink	0.674	listen	0.833
19	correct	0.663	say	0.761
20	work	0.647	word	0.701

Figure 3 illustrates the spatial relationships among the three nominal variants or textbooks in focus, in which the x-axis represents the first dimension, or the category of ‘personal interaction-oriented vs. less personal interaction-oriented’ and the y-axis shows the second dimension, or the category of ‘phased learning-conscious vs. less phased learning-conscious’. As is clear in Figures 1, 2 & 3 and Tables 3 & 4, *Iran* is distant (different) from *Sri Lanka* and *Japan* on the x-axis (the first dimension) by 2.729 and 2.513 points, respectively, and *Japan* is distant (different) from *Sri Lanka* on the y-axis (the second dimension) by 2.194 points. *Iran* is midway between the other two textbooks on the y-axis. This means that the three textbooks are different from each other, each having their own characteristic features, and that those textbooks vary by differences in perspective, as shown by the coordinate axes in the figure.

CONCLUSION

In this paper through CA the seventh graders’ textbooks of Iran, Japan, and Sri Lanka were analyzed and discussed. First, the readability of the three textbooks was explored. It was found that Sri Lanka was the most difficult among all the texts, and the second most difficult one was Japan.

Second, the three Asian textbooks proved to be different from each other. The CA map shows that on the first dimension, Iran was distant from the other two textbooks, Japan and Sri Lanka. The difference was explained by the category of ‘personal interaction-oriented vs. less personal interaction-oriented’. On the second dimension, Japan was distant from Sri Lanka. The difference was described by the category of ‘phased learning-conscious vs. less phased learning-conscious’.

Finally, future research should focus on the analysis of more textbooks including Japanese textbooks by using CA in order to create better textbooks for English learners.

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