

Chapter 5

An Explanatory Comparison of Japanese Secondary English Textbooks and IB English Textbooks

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ABSTRACT

Fifty percent of IB schools in Japan use both the national and IB-authorized English textbooks. This chapter will explore the issue of how these differ. Books used for the study came from MYP Phase 3, MYP Phase 4, DP English B, and each grade of Japanese high school. In Study 1, 150 texts were checked for various language features: length, vocabulary profile, and readability. Text length was well-controlled in the Japanese textbooks, while IB books have both short and long texts. For vocabulary, AWL words appeared most often as the grade goes up. Analysis of English Vocabulary Profile showed that fewer CEFR A1/A2 words are used and more CEFR B/C level words appear as the grade goes up. Readability indices also show a wide range of levels. In Study 2, reading tasks are categorized in two ways: pre-/while-/post-reading tasks, and Anderson's taxonomy. In the IB textbooks, about 50% of the reading tasks require higher-order thinking skills whereas 70% of Japanese textbooks have tasks only requiring low-order thinking skills. This shows the sharp contrast between the two types.

INTRODUCTION

Japan has experienced a rapid increase in IB (International Baccalaureate)-authorized schools in the Asia-Pacific region in recent years. In 2020, about 80 schools are authorized to implement IB programs according to the Ministry of Education, Culture, Sports, Science, and Technology (MEXT, 2020). This is part of the educational reform by MEXT to achieve over 200 IB-authorized schools in Japan. About half of these schools are international schools, which are independent of the Japanese educational curriculum; the other half are following both the Japanese educational curriculum and the IB curriculum.

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In the Japanese curriculum, MEXT emphasizes the importance of using textbooks that are approved by MEXT in elementary and secondary education, and it requires all the public elementary and secondary schools in Japan to follow the national curriculum and use government-authorized textbooks (Matsuda, 2002). Therefore, the latter half of these schools implementing the IB programs in Japan, especially, the public schools are supposed to conduct the classes in their curricula with Japanese-authorized English textbooks.

Textbooks generally reflect the guidelines and principles of the educational programs (Oates, 2014). For Japanese textbooks, MEXT enforces a strict investigation and authorization process to publish those textbooks. Therefore, those textbooks follow the national curriculum guidelines without which they cannot proceed to the investigation and authorization stages. Although the IB does not oblige IB-authorized schools to use specific textbooks, it offers some commercial textbooks as teaching material for teachers and some of them carry the IB logo. This ensures that the textbooks reflect the philosophy and approach of the IB programs and subject guidelines. Although there is some difference concerning how the textbooks are employed between IB and the Japanese national curriculum, the textbooks in the two curriculums are supposed to reflect the two sets of guidelines and principles. Thus, it is worth exploring what the two curriculums aim to achieve through the investigation of the textbooks.

Along with the increasing number of IB-authorized schools following the Japanese curriculum, another motivation for research comparing Japan's-authorized English textbooks and IB textbooks, is the rise of pedagogic practice incorporating the teaching and learning of foreign-language subjects of the IB into English-learning classrooms in Japan (see Akatsuka, 2017). For the practitioners who teach in Japanese public schools, it is obligatory to use Japan's authorized English textbooks. Thus, this research aims to shed light on the features of the textbooks from each program to bridge the gap between the two curriculums.

In 2022, the new Japanese National English Course Guidelines will be enacted in high schools in Japan. As the new guidelines start, new textbooks will be published and be required to be used. Thus, before the implementation of the guidelines, it is useful to review what has, and has not, been achieved concerning the question of textbooks. In this way, this chapter aims to provide a useful marker in the development of teaching materials from an applied linguistics perspective.

THE PEDAGOGIC PRACTICE OF ENGLISH LESSONS WITH IB APPROACH BASED ON JAPANESE NATIONAL CURRICULUM

Akatsuka (2017) reported on the effects of pedagogic practices with the teaching principles of Language B, which refers to subjects learned in second languages in the IB Diploma Program. The location under study was a high school in Japan, and the characteristics of the teaching principles in the IB English B are summarized as follows:

1. The use of authentic materials that have not been edited for simplicity, such as blogs, newspapers, magazine articles, pamphlets and interviews.
2. As recommended by Bloom et al. (1956) and Anderson and Krathwohl (2001), the use of presentations and discussions helps to develop students' higher-order thinking skills (Higher-Order Thinking Skills: HOTS). In turn, this promotes their ability to evaluate information through skills such as analyzing, critiquing, and being creative.

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3. Receptive skills (listening and reading) and productive skills (speaking and writing) promote the development of interactive, communicative skills in a balanced manner.
4. The teaching of grammar is conducted in a contextualized fashion, not as an object of study in itself.

Akatsuka (2017) compared an experimental group in a Japanese high school that received lessons with the teaching principles of the IB English B described above with a control group that received lessons based on standard Japanese curriculum guidelines. The results of the pre- and post-questionnaires showed that the experimental group had higher intrinsic motivation for learning English than the control group, but only in the post-questionnaire. Moreover, in a comparison of pre- and post-essay writing of both groups, the final essays of the experimental group were found to contain a higher proportion of words from the Academic Word List (AWL, Coxhead, 2000). These are words from a list of 570 word families beyond the first two thousand common words of English, which appear commonly in academic texts, and hence prepare students to be able to process more academically advanced topics. Akatsuka (2017) argues that, due to the higher proportion of AWL vocabulary appearing in their final academic writings, the development of CALP (Cognitive Academic Language Proficiency) skills, which are required for presentations, discussions, and similarly advanced activities, can be strengthened through the use of the teaching principles in the IB English B course. It also motivated learners to learn English beyond merely the lessons based on standard Japanese curriculum guidelines. Akatsuka (2017) provided some evidence of the effectiveness of the teaching principles of the IB language course. However, the differences in regular Japanese high school textbooks and IB textbooks used as teaching materials have still not been verified.

THE DIFFERENCE BETWEEN ENGLISH LESSONS BASED ON JAPANESE NATIONAL CURRICULUM GUIDELINES AND ENGLISH LESSONS WITH THE IB APPROACH

Before going onto the textbook analysis, two language educational programs need to be mentioned: English education based on the Japanese national curriculum guidelines (Ministry of Education, Culture, Sports, Science, and Technology, MEXT, 2009) and English Lessons based on the IB Subject Guide (IBO, 2013). Akatsuka (2017) offers a detailed review comparing the Japanese National English Course Guidelines (JNECG) with two IB sources: the IB Language B Subject Guide (SG) and Teacher Support Material (TSM) in DP (IBO, 2014a). Based on the literature review by Akatsuka (2017), the author added the information based on MYP Language Acquisition SG (IBO, 2017), as shown in Table 1.

A clear difference is apparent between the Japanese National English Course Guidelines (JNECG) and the two Subject Guides (DP Language B and MYP Language Acquisition) with regard to their focus on description. In the JNECG, detailed explanations are offered about prescribed target grammar patterns and example situations about how to use those language forms. In contrast, the IB Subject Guides focus much of their attention on the topics to be covered, and the assessment procedure and the criteria. In the Japanese national curriculum, the assessment criteria and example situations to assess the criteria are described in the document by National Institute for Educational Policy Research (2012).

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Table 1. The Comparison of JNECG, IB SGs and TSMs

		JNECG	IB Language B SG / TSM	MYP Language Acquisition SG
1	General focus of the guidelines	The focus is on the lists of the target grammar items to be covered in each grade and example situations of the language use.	The focus is on the topics to be covered and how to assess students' performance.	
2	Assessment	Not mentioned	The assessment activities and their criteria on each course are mentioned.	
3	Skills in English	4 skills (Reading, Listening, Speaking, and Writing) should be taught.	Interactive skills as well as Receptive skills and Productive skills should be taught.	
4	Topics	Example topics are as follows: daily life, customs and traditions, stories, geography, history, traditional culture, natural science	*Three core topics and two from five optional topics should be covered. Various text types and language activities dealing with global issues need to be used. It provides a wide range of possible subtopics.	Four Key Concepts and Related Concepts in each Phase are mentioned. Topic examples are provided in each concept. Also, six global contexts for teaching and learning are mentioned, and students are recommended to learn global issues along with the contexts.
5	Comments on cross-cultural communication	The importance of learning and understanding the target culture, but also Japanese life and culture, are stressed.	Understanding the culture in the local area and the target culture (the country and the region of the language spoken) are stressed.	Cultivating awareness and understanding of the people from a different culture are stressed.
6	Comments on literature	Not mentioned.	At High Level (HL), two pieces of literature from the target language are required.	Both non-literary texts and literary texts should be taught.
7	Relation to other subjects	Not mentioned.	Interdisciplinary learning is stressed, especially to include the approach from the Theory of Knowledge (TOK), which is one of the three core subjects to integrate subject learning.	Through conceptual learning, interdisciplinary learning should be fostered. An "MYP project" requires students to integrate their knowledge gained from subject learning.
8	Levels of course	Two courses, English Communication and English Expressions, are offered at three levels based on each grade.	English B ab initio English B SL (Standard Level) English B HL	MYP English Phase 1 to Phase 6

(based on Akatsuka, 2017)

*In the Subject Guide revision of DP Language B in 2018 (IBO, 2018), IB English B, core topics and subtopics have been changed to five themes, all of which must be covered.

The new English B Subject Guide (IBO, 2018) outlines a variety of text types, and stresses the importance of providing students with enough opportunities to read various types of text. MYP Language Acquisition Subject Guide (IBO, 2017) also mentions that both literary texts and non-literary texts must be included, and provides example text types. The JNECG suggests some topics, but they are not a requirement.

In comments on cross-cultural communication, both the JNECG and the two IB SGs explain the importance of the understanding of target cultures. However, the JNECG stresses the importance of encouraging students to reflect on Japanese culture. In comments on how to deal with literature, while the JNECG doesn't offer any comments, DP English B requires the study of two pieces of literature at

the Higher Level (HL) and MYP Language Acquisition stresses that both literary texts and non-literary texts should be covered.

Concerning the relation to other subjects, while the JNECG doesn't make any comment, the two IB SGs emphasize the importance of interdisciplinary learning, and students are supposed to integrate their subject learning in both of the following courses: in TOK in the DP program, and MYP project in the MYP program. Interdisciplinary learning is fostered, for example, through the use of conceptual learning in the MYP program, which functions to connect the subject areas by providing some shared concepts (IBO, 2014b; IBO, 2017).

Lastly, the JNECG defines the content to be learned in the two courses: English Communication and English Expression based on each of the three grades of high school. English Communication mainly focuses on reading and other communicative activities related to reading, and English Expression focuses mainly on grammar and writing skills (MEXT, 2009). In contrast, DP English B offers three levels and MYP English offers six levels: namely 'phases' according to the students' English proficiency levels. Overall, it can be concluded that the notable difference between the JNECG and the two IB SGs is the descriptive focus: JNECG focuses on the prescription of target grammar items and example situations of how to use the language; the two IB SGs explain the topics to be covered, and the assessment procedure and the criteria in detail. Also, along with the description of general teaching principles in the IB program, the two IB SGs provide some guidance about the subject specific teaching and learning principles based on evidence from Second Language Acquisition, and language teaching studies. For example, the MYP SG relies on the principle stated by Halliday (1985) that students' language knowledge and understanding is developed through, first, learning language, second, learning through language, and third, learning about language. Conversely, the JNECG only provides what can be considered an inadequate description of how to teach the subject, although the purpose of the subject and the learning goals are described in detail.

TEXTBOOK ANALYSIS

Textbooks play a significant role in students' learning in classrooms (e.g. McDonough & Shaw, 1993). In addition to this, textbooks also provide an opportunity for teachers to hone their teaching skills (Richards, 2001).

Generally, textbook analysis can be conducted in two ways. The first is to focus on various aspects of language features in reading passages such as topics, text type, text length, vocabulary, and readability. With regards to language features, previous research has explored various dimensions of vocabulary in reading texts. The lexical analysis includes the proportion of vocabulary at each frequency level such as the proportion of words from the first one thousand words (1K), the second one thousand words (2K) and so on. In addition, the number of incidences of words and phrases (i.e. chances for students to encounter the same items) in reading texts is assessed (Laufer & Rozovski-Roitblat, 2011; Teng, 2019). Meunier & Gouverneur (2009) provide an overview of some previous studies on vocabulary teaching and learning. For example, to measure vocabulary levels, information from corpora offers highly useful information on the distribution of vocabulary in authentic texts. The Academic Word List (AWL) (Coxhead, 2000) is composed of 570 words including their derivations and inflections. These words were selected as the most essential to comprehend academic texts and lectures, and typically cover between 5% and 10% of such texts. This makes it a highly useful, and appropriate, resource for learners to master. The vocabu-

lary in the AWL is certainly necessary for tertiary-level learning, as well as in secondary education as a preparatory stage for going up to university. For this reason, it is highly pertinent to explore to what extent the vocabulary from this list is taught in secondary school textbooks.

Another measure of the linguistic properties of the analysis of textbooks that can be carried out is the comparison of their readability. Readability indices offer information as to what extent a text is easy or difficult for learners to read. Browne (1996) compared the readability of textbooks used in an EFL context (Japan) and those used in an ESL context (America). The average readability of the texts examined in the study revealed that the Japanese EFL textbooks were easier to read than the American ESL textbooks. Recently, there have been some studies on readability which do not rely on readability indices. For example, Miyoshi (2016), employing Text Inspector (Bax, 2012), attempted to evaluate the difficulty of the reading materials based on the vocabulary list from the Common European Framework of Reference (CEFR; Council of Europe, 2001) and compare the results with readability indices. Text Inspector is an online text analysis tool, which provides various kinds of data about texts such as length, the number of word types, the number of sentences per text, readability indices, and the presence of vocabulary items which appear in major vocabulary lists, such as the British National Corpus (BNC), and the Corpus of Contemporary American English (COCA). In addition to this, Text Inspector employs the English Vocabulary Profile (EVP), an online list of vocabulary based on six CEFR levels, and it automatically identifies the words and their word classes in a text, and categorizes them according to the six CEFR levels: A1 to C2. Miyoshi (2016) utilized EVP to identify the difficulty of texts and compared the results with the Flesch-Kincaid Grade Level (FKG), which is a readability index. It revealed significant correlations with text difficulty such as the proportion of A1 level vocabulary of EVP and FKG ($r = -0.98, p < .001$) and other CEFR levels as well.

Another method is to focus on the tasks and questions related to reading and listening input. Kawano (2016) compared two Japanese high school textbooks and two DP English B textbooks with a focus on reading text types, themes, and tasks and related questions. The study showed first that the DP textbooks include many more types of reading texts compared to the Japanese textbooks, which mostly provide expository texts. According to her study, more than 75% of the reading texts in the Japanese textbooks were expository. In the same study, an analysis based on the framework of Anderson's taxonomy (2001), which explains six levels of cognitive demands from lower-order thinking skills (LOTs) to higher-order thinking skills (HOTs), was conducted. This revealed that the tasks and questions related to the reading materials incorporated into DP English textbooks require both LOTs and HOTs, although about 85% to 95% of the tasks and questions in the Japanese English textbooks focus on LOTs, such as remembering and understanding. Hirai (2014) provides additional evidence that 40 to 80 percent of the questions and tasks in six Japanese junior high school textbooks require learners to demonstrate LOTs, especially remembering and understanding.

In the present study, the aim is to reveal the similarities and differences of Japanese high-school English textbooks based on the Japanese National English Course Guidelines and IB MYP English and DP English B textbooks based on the Subject Guides (published by IBO) from two aspects. First, the language features of the reading text, and language activities and questions in each task related to the reading texts, will be clarified. Previous studies on textbook analysis examined readability or vocabulary features of ESL textbooks and EFL textbooks, but few studies have demonstrated the comparison of those features between Japanese high school textbooks and IB textbooks. The aim of the study by Kawano (2016) was on the analysis of the reading task and it did not examine the features of the reading text itself. Second, this study will attempt to expand the scope of the contrast of the two kinds of textbook and their tasks.

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Although Kawano (2016) has already provided some information on the difference of Japanese high-school English textbooks and IB DP English B textbooks, the examination was limited to DP English B and second-year Japanese high school textbooks. Therefore, the present study will include a wider range of textbooks: three grades from Japanese high school textbooks and two phases of MYP English textbooks as well as one DP English B textbook. The scope of the analysis will be broadened to the MYP textbooks because the MYP program is offered to students from 12 to 16 years of age and the last year of the program overlaps with the first year of Japanese high school. This will provide insights as to what extent IB textbooks and Japanese high school textbooks provide tasks that require HOTS and LOTS.

Considering the findings from the previous studies comparing Japanese English textbooks and IB English textbooks (Kawano, 2016), the present research aims to provide answers to the following two research questions:

1. What are the respective differences in language features of the reading texts of Japanese high school textbooks and IB English textbooks?
2. What are the differences in reading tasks and questions between Japanese high school textbooks and IB English textbooks?

The detailed comparison between the two kinds of textbooks will uncover the characteristics of their reading materials and the reading-related tasks. This will shed light on their strengths, the areas for improvement, and will provide insights as to how best to deal with the two kinds of textbooks effectively.

METHODOLOGY

Study 1: Reading Text Analysis

Textbooks

In the present study, three English textbooks used in each grade of Japanese high schools and three IB-authorized textbooks were selected. For the Japanese textbooks, one textbook from the high school series “English Communication” was selected from among over 30 titles. It was the one used in the researcher’s school, as this facilitated the collection of data. The textbooks were written for students enrolled in high-level English courses to prepare them for entrance examinations for top universities. Textbooks for each of the three English Communication courses were chosen in this current study because the focus of the course is on reading and reading-related tasks. For the IB textbooks, the commercial textbooks from MYP English phase 3, MYP English phase 4, and DP English B were used. As mentioned in the bottom right of Table 1, the MYP English course is offered between Phase 1 to 6. Since phase 3 and 4 are offered in most of MYP schools, commercial textbooks are published for those two phases.

In the first study, all the reading texts except the models for output activities and audio-visual input (n=150, which is the number of reading texts) were categorized into text types based on the text type provided list by Kawano (2016), then examined with the online text analysis tool Text Inspector (Bax, 2012). The text length, the number of sentences per text, the proportion of all AWL words (types) per text, the proportion of words in each CEFR level (EVP), and readability (Flesch Reading Ease) were analyzed. In this study, since the number of texts is quite different between the IB and Japanese text-

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books, the text length was analyzed in terms of the number of words and sentences per text, instead of counting all the words in each textbook. The proportion of words in each CEFR level was measured by EVL. Lastly, among the readability indices, Flesch Readability Ease Score (aka, Flesch Reading Score) (Flesch, 1974) was adopted because it has most frequently appeared in the previous studies of textbook analysis. Table 2 describes how to interpret the level of readability in American grade level.

Table 2. Readability in Flesch Reading Ease

Score	Reading Difficulty	Grade Level
90-100	Very Easy	4th grade
80-90	Easy	5th grade
70-80	Fairly Easy	6th grade
60-70	Standard	7th-8th grade
50-60	Fairly Difficult	High school
30-50	Difficult	High school-college
0-30	Very Difficult	College graduate

RESULTS

The Text Types

The number of texts examined in each textbook and the text types of the passages is shown in Table 3. The numbers in the parentheses indicate the number of texts in each text type. As is shown in the table, the three IB textbooks deal with various text types, while the passages in Japanese high school English textbooks are mostly expository. Besides, the narratives in the 1st-year and 2nd-year Japanese high school textbooks are presented as optional reading passages. Yamaoka (2019) states that a practical reason for this lies in the strong presence of expository texts in Japanese textbooks. The paragraph structures of the expository texts are clearer than the narrative texts and so it is convenient to teach textual coherence from them. He also states that for Japanese textbook writers, the originality of the chapter topics is an essential marketing strategy. On the other hand, in the IB textbooks, narratives have a strong presence; especially in the DP English textbook, the narrative type appeared more than any other type. One of the reasons they are regarded as more important in the DP English is that in HL course, literature is considered as an additional component of language development by the subject guide and the understanding of literature in the target language is incorporated into the assessment objectives (IBO, 2015) and the study of two literary works originally written in the target language is a requirement in the guidelines. It is also notable that the text genre or the context of the passage is explicitly shown in many of the passages in the IB textbooks. For the unit about recycling in the MYP textbooks, students read a recycling guideline poster of a certain city explaining what is recyclable and what is not. Then they go over the procedural text of how to plan a successful school recycling program. Lastly, they read the mind-map of energy-saving ideas for schools and the actual checklist of a certain school's energy conservation project. As the example demonstrates, this helps learners to imagine where they might be able to see the texts and how these texts are related to their real-life situations. However, in the Japanese high school English

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textbooks, reading passages are not accompanied by this sort of contextual information, and teachers need to devise reasons why learners need to read the passage, if necessary.

Table 3. The number of texts examined and the text types

	# of Texts Examined	Text Types
MYP English Phase 3	25	expository (7), narrative (6), opinion (5), blog (1), survey (1), poster (1), brochure (1), guidelines (1), checklist (1), mind map (1)
MYP English Phase 4	31	expository (12), narrative (7), opinion (6), poster (3), speech (2), report (1)
DP English B	57	narrative (21), expository (16), opinion (8), news article (4), diary (2), book review (2), movie review (1), letter (1), guidelines (1), advertisement (1)
JHS English 1 st year	12	expository (10), narrative (2)
JHS English 2 nd year	12	expository (9), narrative (2), speech (2)
JHS English 3 rd year	16	expository (15), narrative (1)

The Text Length

Table 4 and Table 5 illustrate the number of words per text and the number of sentences per text respectively. As shown in Table 4, the reading texts in the MYP English Phase 3 are the shortest among the other five textbooks in this study; on average, they have less than 400 words per text, and MYP English Phase 4 comes next. The MYP program corresponds to Grade 7 to Grade 10 in Japan’s educational system, so compared to other high school textbooks, the two MYP textbooks offer shorter texts reflecting the proficiency level of the students in those grades. In contrast, all four of the high school textbooks contain texts of more than 650 words per text on average. The Japanese high school second-year textbook has the longest average text length (868.7 words), which are supposed to be increased by the two “Optional Readings”. Both are narratives and they are considerably longer than the other ten texts. In this way, compared to IB textbooks, Japanese textbooks do not provide as many reading passages as the IB textbooks, and the length of one text has a significant impact on the results with regard to the proportion of the average words per text. Except for the year-2 textbook, the text length is fairly controlled in the Japanese textbooks, and most of them are in the range of 400 to 1,000 words length. In contrast, IB textbooks include very short 150-word passages to 1,700-word narratives in the DP English B, which reflects the fact that IB textbooks deal with a wide variety of text types, including visual text such as posters. A similar tendency was observed in the number of sentences per text in Table 5. The IB textbooks contain quite short passages of 100 to 200 words, and comprise about 10 sentences per text.

Table 6 describes the number of words per sentence in each textbook. As the grade goes up, the number of words per sentence gradually increases both in IB textbooks and in Japanese high school textbooks. The increase from the Japanese year-2 and year-3 textbooks is quite remarkable. The Japanese year-3 textbook provides reading passages that contain quite long sentences: 18.2 words per sentence on average, compared to the other textbooks. However, focusing on the text with the longest average sentence length, the MYP Phase 4 and the DP English B textbooks contain reading passages with an average of more than 25 words per sentence. Focusing on the text with the shortest average sentence length, except the Japanese year-3 textbook, all the other five textbooks contain passages of fewer than ten words per

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sentence. Since IB textbooks include various text types, the language style with shorter sentences might be selected depending on the text type. In contrast, in the Japanese year-1 and year-2 textbooks, passages in the earlier lessons contained texts with shorter sentences, which might reflect the editor’s attempt to reduce the learning burden for learners.

Table 4. The number of words per text

	# of Texts Examined	# of Words per Text (mean)	# of Words per Text (max)	# of Words per Text (min)
MYP English Phase 3	25	396.6	902	158
MYP English Phase 4	31	487.6	840	134
DP English B	57	658.9	1744	111
JHS English 1 st year	12	656.3	865	426
JHS English 2 nd year	12	868.7	1356	426
JHS English 3 rd year	16	745.6	1031	452

Table 5. The number of sentences per text

	# of Sentences (mean)	# of Sentences (max)	# of Sentences (min)
MYP English Phase 3	29.1	83	11
MYP English Phase 4	34.6	76	10
DP English B	47.4	222	6
JHS English 1 st year	54.5	72	36
JHS English 2 nd year	70.2	184	36
JHS English 3 rd year	41.5	62	23

Table 6. The number of words per sentences

	Average Words per Sentence (Mean)	Average Words per Sentence (Max)	Average Words per Sentence (Min)
MYP English Phase 3	13.9	20.5	9.1
MYP English Phase 4	15.2	26.1	9.3
DP English B	15.5	25.6	6.7
JHS English 1 st year	12.2	18.4	8.5
JHS English 2 nd year	13.4	17.6	8.5
JHS English 3 rd year	18.2	21.7	13.7

The Vocabulary Analysis

Concerning vocabulary, two indices are used to analyze vocabulary: Academic World List (AWL) (Coxhead, 2000) and English Vocabulary Profile (EVP) (Capel, 2012). Table 7 shows that, on average, the vocabulary from Academic Word List (AWL) appeared more frequently as the grade goes up both in the IB textbooks and in the Japanese high school English textbooks. The vocabulary from AWL is incorporated most frequently in the third-year Japanese English textbook, with an average of 7.9 words per text, followed by the DP English B textbook with an average 6.41 words per text, on average. All three IB textbooks include reading texts with a comparatively high AWL vocabulary percentage: approximately 15% to 20% of the vocabulary is from the AWL. On the other hand, two MYP textbooks also have a passage that contains no vocabulary from AWL. This indicates that especially in MYP textbooks, various text types including informal or non-academic passages are covered and the vocabulary from AWL is not appropriate for some of those passages.

Table 7. Percentage of all AWL words (types) in the text

	% of All AWL Words (Types) in the Text (Mean)	% of All AWL Words (Types) in the Text (Max)	% of All AWL Words (Types) in the Text (Min)
MYP English Phase 3	5.3	14.5	0
MYP English Phase 4	5.9	18.8	0
DP English B	6.4	20.9	0.8
JHS English 1 st year	3.4	5.9	1.3
JHS English 2 nd year	5.6	9.3	1.3
JHS English 3 rd year	7.9	12.5	3.6

English Vocabulary Profile (EVP) offers extensive information about the Common European Framework of Reference for Languages: CEFR (Council of Europe, 2001) levels of words, phrases, phrasal verbs, and idioms, and currently includes just under 7,000 headwords (Capel, 2012). The analysis of EVP revealed that both in the IB textbooks and Japanese high school English textbooks, there is a tendency that fewer A1 and A2 words are used, and more B and C level words appear as the grade goes up (Table 8).

However, another notable tendency is that as the grade goes up in the IB textbooks, the off-list words, which are not on the EVP list, appear more frequently, although the off-list words are quite controlled and appear less in the Japanese textbooks. Japanese English textbooks are designed to build up students' knowledge in small steps. The publishers follow some rules dealing with vocabulary; for example, for the first-year senior high school English textbooks in Japan, all the new vocabulary items which did not appear in junior high school textbooks are shown in glosses, or they are found in the list in the reference pages of the textbook. Also, many expressions in the passage are rewritten considering the learners' expected current vocabulary and grammar knowledge. As well as the vocabulary, grammatical structures are carefully selected so that learners do not encounter unknown structures in the learning passages. Although it is natural that learners encounter off-list words in real-life situations, in the learning context, teachers may be confused about how to deal with them.

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Table 8. Percentage of A1 to C2 type vocabulary in English Vocabulary Profile (EVP)

	A1 Type %	A2 Type %	B1 Type %	B2 Type %	C1 Type %	C2 Type %	Unlisted Type %
MYP English Phase 3	50.6	18.4	13.6	6.7	1.8	0.9	8.0
MYP English Phase 4	44.5	15.4	14.2	10.0	2.1	1.4	12.4
DP English B	41.4	16.7	13.9	9.7	2.6	1.7	14.1
JHS English 1 st year	47.5	20.4	12.6	6.9	1.1	0.9	10.7
JHS English 2 nd year	44.1	19.2	13.8	8.7	2.0	1.0	11.2
JHS English 3 rd year	41.6	18.5	16.0	10.4	1.8	1.3	10.4

The Readability Analysis

Table 9 shows the results of the readability analysis using the Flesch Reading Ease formula (Flesch, 1974). In this index, the higher the value, the easier the text can be considered for learners to read. In contrast, the lower the value is, the more difficult it is for learners to read. This index is expressed as the number of words per sentence and the number of syllables per word. The readability analysis demonstrates that, on average, all six textbooks reach a level of around 60 to 70 in Flesch Reading Ease Formula, which corresponds to seventh- to eight-grade texts in the American public school system. However, the IB textbooks have various reading texts from the fourth-grade level to the college-graduate level. In contrast, reading texts from two of the Japanese textbooks are well controlled. They are roughly equivalent to 20-30 in Flesch Reading Ease except for the Japanese 2nd-year textbook, which includes quite easy texts with a FRE value of 95.9.

Table 9. Readability in Flesch Reading Ease

	Flesch Reading Ease (Mean)	Flesch Reading Ease (Max)	Flesch Reading Ease (Min)
MYP English Phase 3	71.0	88.7	43.2
MYP English Phase 4	64.2	97.3	25.6
DP English B	65.6	92.6	28.8
JHS English 1 st year	70.7	84.3	64.1
JHS English 2 nd year	71.3	95.9	64.1
JHS English 3 rd year	60.1	70.1	51.5

Study 2: Reading Task Analysis

In the second study, the reading tasks that appear in each textbook and where they are placed will be described. Then the characteristics of the reading tasks in each textbook will be briefly described.

Second, reading tasks are categorized in two ways. The first is to divide them into pre-reading, while-reading, and post-reading tasks. The second way is based on the categories in Anderson's Revised Taxonomy (2001). In the present study, the categorization is done by the type of task that the textbook

suggests, such as post-task discussions etc., and not by each question. For example, a reading comprehension task which includes some questions is counted as one task. Based on this definition, 752 tasks are included in the analysis.

In the first categorization, according to pre-reading/while-reading/post-reading tasks, the tasks which appear before the reading passage in the textbook are counted as pre-reading tasks. Those which appear after the reading passage are regarded as post-reading tasks. While-reading tasks are counted when the task is mentioned as while-reading.

In the second categorization based on Anderson’s Revised Taxonomy (2001), the tasks were categorized based on the definitions in Table 10. When questions are included in one task, all the applicable categories were checked. For example, the three questions below are a post-reading task after a reading passage about Hokusai Katsushika, a famous Japanese artist. The first question requires learners to find a fact from the passage, so it is categorized as ‘1. Remember’. To answer the second question, learners need to interpret the meaning of the text, so it is categorized as ‘2. Understand’. Question 3 requires learners to express their opinions about Hokusai’s character, so it is categorized as ‘5. Evaluation’. Therefore, these three categories must be checked in the task.

- Q1 How many times did Hokusai change his artist’s name?
- Q2 Why did he decide to create a large portrait of Daruma?
- Q3 What can you say about Hokusai’s character?

Table 10. Anderson’s Revised Taxonomy (2001)

Categories	Definition
1. Remember	Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.
2. Understand	Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas.
3. Apply	Solve problems to new situations by applying acquired knowledge, facts, techniques, and rules in a different way.
4. Analyze	Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.
5. Evaluate	Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.
6. Create	Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.

RESULTS AND DISCUSSIONS

Figure 1 illustrates the reading tasks and their order in each textbook. The labels above each box follow the names of the tasks in each textbook as accurately as possible. The boxes above the reading text are pre-reading tasks. While-reading tasks, which appeared only in MYP English textbooks, appear just above the box of the reading text. Post-reading tasks are the boxes below the reading texts.

Compared to Japanese textbooks, one of the clear differences is that both the DP and MYP textbooks have embedded questions as the first pre-reading task, and the post-reading task ends with a reflection task about the questions. In MYP textbooks, those questions are referred to as Conceptual Questions, and

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as Research Questions in DP. In MYP, conceptual learning is stressed in the SG, so those questions are therefore inquiry questions about the learning concepts. These tasks are included to foster learning based on the inquiry learning cycle (IBO, 2013; IBO, 2014a). The inquiry cycle is a constructivist learning approach, which regards ‘asking’ (inquiry), ‘doing’ (action), and ‘thinking’ (reflection) as interfacing with each other and thereby fosters the process by which learners learn.

On the other hand, some similarities are found between Japanese textbooks and IB textbooks. First, other pre-reading tasks, except Conceptual and Research Questions, are designed to help students activate their background knowledge, or schema, of what they have read, although the tasks themselves differ in each textbook. However, while Japanese textbooks provide only questions, IB textbooks offer various tasks such as discussions, which help students to personalize the reading topics and think about them from a personal perspective. For example, there is a lesson about friendship in the MYP English textbook. Before reading a passage about how to make friends, as a pre-reading task, the ten headings for the pieces of advice from the passage are given and students choose the best seven pieces of advice to give to a new friend. Then, students also make their own personal lists of how to make friends, and share them in class.

Another similarity in the post-reading tasks is the activities which are included to have students check their understanding of the text. Comprehension tasks or text-handling exercises are offered in all six textbooks. Also, after the comprehension tasks, all six textbooks provide an opportunity to students to produce output such as an oral presentation or some writing activities. However, as well as the pre-reading task, in the IB textbooks, various language supports such as model writing samples, and scaffolding activities such as brainstorming or planning are provided as output activities.

Figure 1. The Reading Tasks and Their Order in Each Textbook

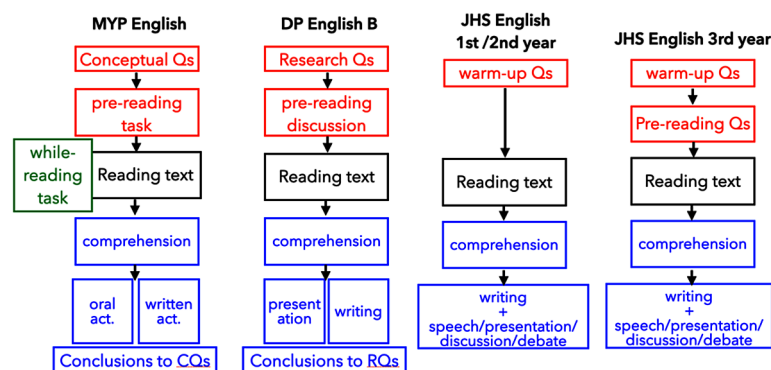


Table 11 describes the proportion of pre-/while-/post-reading tasks that appeared in the six textbooks. The categorization illustrated that more than 90% are post-reading tasks in two of the Japanese textbooks while, in contrast, the IB textbooks contained less than 80% of such post-reading tasks. One of the reasons why the Japanese year-3 textbook included a larger proportion of pre-reading tasks is that, as is shown in Figure 1, pre-reading questions are divided into two tasks. Although the Pre-reading Questions in the year-3 textbook consist of two or three simple questions, based on the categorization in the current analysis, the researcher judged that it warranted a higher pre-reading task ratio. Apart from this, generally, the Japanese textbooks have a higher proportion of post-reading tasks compared to the IB textbooks.

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Table 11. The number of Pre-/While-/Post-reading tasks

	# of Texts Examined	#of Tasks Examined	#of PR Tasks	#of WR Tasks	#of AR Tasks
MYP English Phase 3	25	108	16.7%	13.0%	70.4%
MYP English Phase 4	28	116	14.7%	7.8%	77.6%
DP English B	57	185	31.9%	0%	68.1%
JHS English 1 st year	12	116	8.6%	0%	91.4%
JHS English 2 nd year	12	118	8.5%	0%	91.5%
JHS English 3 rd year	16	109	29.4%	0%	70.6%

Table 12 shows the percentages for the tasks and questions for each criterion of Anderson’s taxonomy. The categorizing based on the taxonomy displays a sharp contrast between IB textbooks and Japanese textbooks. In order to ensure the reliability of the analysis, 20% of the tasks were also analyzed separately by another researcher, and 96% of the categorization was identical. In the Japanese textbooks, approximately 70% of the tasks were labeled “Remember” and “Understand” which require lower-order thinking skills; however, in the IB textbooks, tasks using those two skills were less than 50% in all three textbooks, and the other tasks can be considered as activities which require higher-order thinking skills. Although the categorization of questions and tasks differs from the previous study by Kawano (2016), a similar tendency was observed. Namely, in the present study, some questions are categorized as just one task. However, if each question is categorized and counted in the classification, a higher proportion of the Remember and Understand categories in every textbook will be expected because those questions frequently appeared in the comprehension tasks. The possible reason why the Japanese textbooks contained a higher proportion of LOTS tasks is due to the fact that a large proportion of the tasks were after-reading tasks and most of them were comprehension questions to check the understanding of the text, an activity which generally requires LOTS.

The reason why the Japanese year-2 textbook contained a higher ratio of the Analyze category lies in the fact that particular questions requiring learners to search for the information by themselves appeared more frequently than in the other two Japanese textbooks. An example question is as follows:

Q. In what other countries in Asia is bonsai popular? Search the Internet for some information.

CONCLUSION AND PEDAGOGICAL IMPLICATIONS

The first research question was to investigate the differences in language features of the reading texts of Japanese high school textbooks and IB English textbooks. As for reading materials, reading texts in the Japanese high school textbooks are well-controlled in terms of vocabulary and readability, which helps to facilitate learning for learners. IB textbooks control the vocabulary at the textbook level fairly well. They contain an increasing amount of vocabulary from higher CEFR levels as the grade goes up. However, possibly due to the various text types in IB textbooks, off-list words appeared more as the grade goes up and readability is quite varied, depending on the texts. Therefore, teachers need to be aware of these points when they use IB textbooks.

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Table 12. The percentage for tasks and questions in Anderson's taxonomy

	#of Tasks Examined	Remember	Understand	Apply	Analyze	Evaluate	Create
MYP English Phase 3	108	21.8%	26.5%	13.9%	11.2%	11.9%	14.6%
MYP English Phase 4	116	22.1%	25.8%	14.7%	11.4%	10.4%	15.7%
DP English B	178	21.3%	20%	13.3%	16%	17.3%	12%
JHS English 1 st year	116	44.8%	35.7%	2.6%	6.5%	3.9%	6.5%
JHS English 2 nd year	118	42.7%	30.6%	3.6%	12.1%	5.6%	5.2%
JHS English 3 rd year	109	38.4%	33.5%	8.4%	8.9%	9.4%	1.5%

The second research question was to uncover the differences in reading tasks and questions between Japanese high school textbooks and IB English textbooks. In terms of the reading tasks, generally, the IB textbooks offer a wider variety of tasks than the Japanese textbooks. In particular, the MYP textbooks provide while-reading tasks and various pre-reading tasks. These help learners not only to enhance their background knowledge but also to personalize the reading topic. In the post-reading tasks, although both the Japanese and the IB textbooks include comprehension tasks to check the understanding of the text, the IB textbooks offer various forms of scaffolding for output tasks.

Lastly, as mentioned in the introduction, the new curriculum guidelines will be enforced in 2022, and new textbooks will be published. In the books, as the comparison here has revealed, there may well be room for improvement. Textbooks need to provide various kinds of tasks, including pre-reading, while-reading tasks, and output tasks as post-reading tasks. In the pre-reading tasks, as the IB textbooks provide, they should help learners to not only activate their background knowledge but also to be aware of the purpose of reading by guiding them to personalize the reading topic. In the post-reading tasks, they need to include not only the task instructions but also scaffolding such as output models, planning questions, and so on. Overall, the tasks must include not only fact-finding questions that require LOTS from students, but also inquiry questions that require HOTS.

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

The Japanese high school English textbooks used in this study were selected from the more than 30 available titles. Therefore, whether the results of this investigation can be generalized to the remaining textbooks is unclear. Also, as mentioned in the conclusion, the new Japanese National English Course Guidelines (JNECG) will be enforced in 2022, and newly authorized textbooks will start to be published and adopted in high schools nationwide. Therefore, there is even further need for the research reported here to be updated when these new textbooks are released.

Finally, the analysis of tasks conducted in this present study focused much attention on the cognitive aspect of the questions in the tasks, and there is still room for investigating the tasks in terms of language learning activities such as vocabulary learning. For example, Brown (2011) investigated the vocabulary learning activities in ESL English textbooks from various aspects of vocabulary knowledge, and found that there was insufficient development of lexical knowledge.

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