Collocation Research based on Junior-high School English Textbooks in Japan

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Abstract

The present research aims to analyze junior-high English textbooks from the point of view of collocations. This study addresses the following research questions: (1) How many collocations are used in English textbooks for junior high schools in Japan? (2) What type of collocations are used in those English textbooks? (3) How frequently are the same collocations used in those English textbooks?

The results show that of all the verbs appearing in the English textbooks, below 20% are used as a component of collocations (both in tokens and types), and that over 80% of verb-related collocations are composed of verb-noun and verb-preposition combinations. The results also show that around 90% of the verb-related collocations appear only one or two times.

1. Background

Collocation study in English has been catching researchers' attention since acquiring collocations is beneficial for EFL learners' communicative competence (Bahns & Eldaw, 1993; Nattinger & Decario, 1997) and turning passive vocabulary into active vocabulary (Durrant, 2008).
Improved computational tools and performance enable researchers to analyze significant amounts of actual spoken and written text including words and combinations of words effectively. Collocations are quite typical of language (Hill, 2000) and could comprise as much as 80% of a written text (Hill, 2003). The major role of collocations in the language of native English speakers and writers has made the researchers realize that acquiring collocational competence is an important part of becoming fluent in English (Nation, 2000; Nesselhauf, 2003).

While the Ministry of Education, Culture, Sports, Science and Technology (MEXT, 2017) suggested government guidelines for the teaching of collocation in junior high school, it suggests only that "High-frequency collocations should be chosen for instruction", which means it does not clarify the number and type of collocations teacher should teach in junior high school in Japan. To compensate for the lack of clarification concerning collocations for instruction, Koya (2006) presented basic collocations (verb-noun collocations) for Japanese learners to acquire at the early stage. These collocations are basically selected from the collocations included in the English textbooks for high school students. While they are suitable for high school students or above, they might be a little too early or difficult for junior high school students to acquire. In addition, these basic collocations consist of only verb-noun collocations. To foster a variety of collocational competence, it is necessary to cover a wider range of collocational knowledge.

To address these problems, it is necessary to present a collocation list for junior high school students. As a first step, this research aims to clarify the actual state of collocations included in English textbooks for junior high school in Japan through quantitative and qualitative analysis.

2. Methods
2.1 Research questions
The purpose of this study is to answer the following three questions:

RQ1. How many collocations are used in English textbooks for junior high schools in Japan?

RQ2. What types of collocations are used in those English textbooks?

RQ3. How frequently are the same collocations used in those English textbooks?

2.2 Materials
In this research, *"New Horizon English Course 1"*, *"New Horizon En-*

glish Course 2", and *"New Horizon English Course 3"* are selected as targeted English textbooks for junior-high school students in Japan. The main reason to adopt them is that these are some of the major English textbooks authorized by the Ministry of Education, Culture, Sports, Science and Technology (MEXT, 2017). They are also designated as school English textbooks by the Kumamoto City Board of Education, and eight boards of education out of eleven in Kumamoto Prefecture adopted them as designated English textbooks (72.7% (8/11)).

2.3 Procedure

This research targeted verb-related collocations (verb-noun, verb-preposition, verb-adverb (or adverb-verb), noun-verb, verb-preposition-noun, verb-adjective), because previous research mainly focused on verb-noun collocations and found them to be the most difficult type of collocations compared to other types of collocations (Wang & Good, 2007; Xia, 2013). Moreover, verb choices are considered to be most difficult for English learners (Liu, 2002; Nesselhauf, 2003).

To specify verb-related collocations which are used in English textbooks (*New Horizon English Course* 1-3), an English textbook corpus was created. In this corpus-making process, exercises and basic sentences mainly for confirmation of grammatical constructions appeared in the textbooks were excluded to observe the actual state of collocations included in the contents (the main sections) of the targeted English textbooks.

Using the concordance software *"AntConc (Winidows 3.5.8)" (https://www. laurenceanthony.net/software/antconc/)*, total word tokens and total word types were calculated. Then we used three representative collocation dictionaries, *Longman Collocations Dictionary and Thesaurus* (2013), *Oxford Collocations Dictionary for Students of English*, 2nd ed. (2009) and *The BBI Combinatory Dictionary of English* (2009). *Longman Collocations Dictionary and Thesaurus* (2013) and *Oxford Collocations Dictionary for Students of English* second edition (2009) are corpus-based dictionaries. *The BBI Combinatory Dictionary of English* (2009) is edited in the light of

native speaker intuition.

3. Data analysis and findings

All the verb-related combinations appearing in the target textbooks were screened by checking their inclusion in the three collocation dictionaries. Through this selection process, 148 kinds of verb-related combinations (total tokens = 236) are chosen as collocations.

Table 1. Total tokens and types in "New Horizon" (English Course 1-3).

Total Word Tokens	9,781
Total Word Types	1,701

Table 2. Word tokens of verbs and tokens of verb-related collocations

word tokens of verbs		1,223			
tokens of verb-related collocations		236	(a)	100.0%	
[type]	verb-preposition	109	(b)	46.2%	=(b)/(a)
	verb-noun	93	(c)	39.4%	=(c)/(a)
	verb-adverb (or adverb-verb)	15	(d)	6.4%	=(d)/(a)
	noun-verb	9	(e)	3.8%	=(e)/(a)
	verb-preposition-noun	6	(f)	2.5%	=(f)/(a)
	verb-adjective	4	(g)	1.7%	=(g)/(a)

Table 1 shows total tokens and types in junior-high English textbooks, *New Horizon* (*English Course* 1-3).

Table 2 indicates that 236 verb tokens are used as components of verb-related collocations in the English textbooks. This amounts to 19.3% of all the verbs in the textbook (1,223 tokens). Regarding the types of verb-related collocations, verb-preposition collocations are the most frequent, followed by verb-noun collocations. These two types account for 85.6% (46.2%+39.4%) of verb-related collocations.

Table 3. Word types of verbs & types of verb-related collocations

word types of verbs	892			
types of verb-related collocations	148	(a')	100.0%	
[type]	verb-noun	74	(b')	50.0%	=(b')/(a')
	verb-preposition	46	(c')	31.1%	=(c')/(a')
	verb-adverb (or adverb-verb)	11	(d')	7.4%	=(d')/(a')
	noun-verb	8	(e')	5.4%	=(e')/(a')
	verb-preposition-noun	5	(f')	3.4%	=(f')/(a')
	verb-adjective	4	(g')	2.7%	=(g')/(a')

Table 3 shows that the textbooks contained 892 verb types out of 1,223 verbs, and 148 types that are used as components of verb-related collocations. This amounts to 16.6% (148/892) of the verb types. Regarding the types of verb-related collocations, verb-noun collocations are the most frequent, followed by verb-preposition collocations. These two types account for 81.1% (50.0%+31.1%) of verb-related collocations.

As stated above concerning Table 3 and Table 4, tokens and types of verb-related collocations indicate a similar tendency. The number of verb-related collocations is below 20% out of all the verbs used in the English textbooks, and the verb-related collocations consist mainly of verb-noun and verb-preposition collocations (over 80%).

Table 4. Collocations (verb-noun)

No.	node (verb)	collocates (noun)	freq.	No.	node (verb)	collocates (noun)	freq.
1	attract	attention	1	38	make	bed	3
2	bake	cake	1	39	make	decision	1
3	become	reality	1	40	make	money	1
4	boil	egg	1	41	make	movie	1
5	build	bridge	2	42	open	eye(s)	1
6	catch	attention	1	43	open	window	1
7	catch	fish	1	44	play	baseball	1
8	celebrate	birthday	1	45	play	character	1
9	change	strory	1	46	play	drum	1
10	change	trains	1	47	play	music	1
11	clap	hands	1	48	play	soccer	4
12	collect	money	1	49	protect	environment	1
13	cook	food	1	50	report	news	1
14	drink	tea	1	51	ride	bike	1
15	drink	water	2	52	save	life	1
16	finish	work	1	53	save	money	1
17	give	party	1	54	see	movie	2
18	go	fishing	1	55	set	table	1
19	go	shopping	1	56	show	feeling	1
20	have	experience	1	57	solve	problem	2
21	have	fun	3	58	surf	internet	1
22	have	headache	1	59	take	bath	1
23	have	idea	1	60	take	bus	1
24	have	life	1	61	take	care	2
25	have	lunch	1	62	take	look	1
26	have	opinion	1	63	take	medicine	1
27	have	pet	1	64	take	photograph	1
28	have	point	1	65	take	picture	2
29	have	sale	1	66	take	rest	1
30	have	time	5	67	tell	story	1
31	hold	show	1	68	use	wheelchair	1
32	kick	ball	1	69	wash	hair	1
33	learn	lesson	1	70	win	championship	1
34	leave	message	1	71	win	game	1
35	lose	job	2	72	win	prize	1
36	lose	life	1	73	write	letter	1
37	lose	way	2	74	write	music	1

Table 4 shows all the verb-noun collocations appearing in *New Horizon* English textbooks. Almost all the verb-noun collocations appear one or two times (94.6% (70/74)). The most frequent verb-noun collocation is "have time" (5 times), followed by "play soccer" (4 times) and then

"have fun", "make bed" (3 times). Regarding the kinds of verbs in verb-noun collocations, the most frequent verb both in terms of token and type is "have" (17 tokens and 11 types), followed by "take" (10 times in token and 8 times in type), "play" (8 times in token and 5 times in type) and "make" (6 times in token and 4 times in type). Among these types of verbs cited frequently, "have", "take", "make" are referred to as "delexicalized verbs". Delexicalized verbs have little or no meaning outside the context of particular use and they are components in a large number of multi-word expressions (Lewis, 2002).

Table 5. Collocations (verb-preposition)

No.	node (verb)	collocates (preposition)	freq.	No.	node (verb)	collocates (preposition)	freq.
1	agree	with	1	24	prepare	for	1
2	ask	about	1	25	read	about	1
3	ask	for	1	26	return	to	1
4	cut	off	1	27	say	to	6
5	depend	on	1	28	search	for	1
6	die	from	1	29	share	with	1
7	die	of	1	30	sing	to	2
8	end	in	1	31	sit	in	1
9	fall	on	1	32	speak	to	2
10	fight	for	2	33	start	at	1
11	give	up	1	34	take	to	1
12	hand	out	1	35	talk	about	8
13	help	with	1	36	talk	to	2
14	invite	to	1	37	tell	about	5
15	know	about	4	38	thank	for	3
16	learn	about	5	39	think	about	2
17	learn	from	1	40	think	of	1
18	listen	to	4	41	travel	to	1
19	live	in	10	42	wait	for	2
20	look	at	14	43	work	as	1
21	make	into	2	44	work	for	3
22	play	for	1	45	worry	about	4
23	pray	for	1	46	write	about	2

Table 5 shows all the verb-preposition collocations appearing in New Horizon English textbooks. In this case, certain verb-preposition collocations are included intensely. The most frequent one is "look at" (14 times), followed by "live in" (10 times) and then "talk about" (8 times). However, most of the verb-preposition collocations appear one or two times (76.1%).

Table 6. Collocations
(verb-adv. or adv.-verb)

No.	node (verb)	collocates (adverb)	freq.
1	fall	down	1
2	hold	tightly	1
3	like	very much	1
4	listen	closely	1
5	love	really	1
6	sleep	well	1
7	study	hard	2
8	try	hard	1
9	walk	fast	1
10	work	hard	3
11	write	back	2

Table 7. Collocations (noun-verb)

No.	node (noun)	collocates (verb)	freq.
1	bird	sing	1
2	bomb	fall	1
3	door	close	1
4	door	open	2
5	food	taste	1
6	sign	say	1
7	sun	rise	1
8	wind	blow	1

Table 8. Collocations (verb-preposition-noun)

No.	node (verb)	collocates (preposition)	collocates (noun)	freq.
1	hold	in	(one's) arm(s)	1
2	knock	at	door	2
3	knock	on	door	1
4	look	in	mirror	1
5	put	under	arrest	1

Table 9. Collocations (verb-adjective)

No.	node (verb)	collocates (adjective)	freq.
1	feel	happy	1
2	get	tired	1
3	make	happy	1
4	set	free	1

Tables 6 to 9 display collocations composed of verb-adverb or ad-verb-verb (Table 6), noun-verb (Table 7), verb-preposition-noun (Table 8) and verb-adjective (Table 9). Compared to verb-noun collocations (Table 4) and verb-preposition collocations (Table 5), these ones are far less frequent both in terms of tokens and types. Regarding frequency, all these colloca-tions appear only one or two times except for "work hard" (3 times).

4. Summary of the results

The results of this study are summarized according to each RQ.

RQ1. How many collocations are used in English textbooks for junior high schools in Japan?

In the textbooks examined, 236 verbs out of 1,223 (19.3%) and 148 out of 892 (16.6%) are used as components of verb-related collocations in to-kens and types, respectively.

RQ2. What types of collocations are used in the English textbooks?

The results suggest that verb-preposition and verb-noun collocations are major components of verb-related collocations both in tokens (85.6%; 46.2% in verb-preposition, 39.4% in verb-noun) and types (81.1%; 50.0% in verb-noun, 31.1% in verb-preposition). Consequently, other types of collocations (verb-adjective or adjective-verb, noun-verb, verb-preposi-tion-noun, verb-adjective) are all less than 7% both in tokens and types.

RQ3. How frequently are the same collocations used in the English text-
    books?

Most verb-related collocations appear only one or two times (89.2%
(132/148)). However, verb-noun and verb-preposition collocations have
some frequent collocations. Comparing the frequencies in verb-noun and
in verb-preposition collocations, verb-preposition collocations are more
frequent (e.g. 14 occurrences of "look at", 10 occurrences of "live in")
than verb-noun collocations do (e.g. 5 times for "have time", 4 times for
"play soccer").

From the perspective of kinds of verb in verb-noun collocations, delexi-
calized verbs are most frequent ("have", "take"), followed by "play".

5. Conclusion

This research aimed to observe actual status of collocations by identi-
fying tokens and types of verb-related collocations cited in Japanese ju-
nior-high school English textbooks (*New Horizon*).

The number of verb-related collocations is below 20% out of all the
verbs cited in the target English textbooks (both in tokens and types) and
most of the verb-related collocations consist of verb-noun and verb-prepo-
sition (over 80% both in tokens and types).

The results show low number of repetitions are observed in most of col-
locations (around 90% in one or two times).

Previous studies showed the relation between the repetition and the ac-
quisition of collocations. Rott (1999) claimed that six exposures are neces-
sary for words to be learnt. Horst et al. (1998) found that eight occurrences
are needed to acquire them. Some research revealed that 10 occurrences
or above were necessary (Pigada & Schmitt, 2006; Pellicer-Sánchez &
Schmitt, 2010; Waring and Takaki, 2003). Based on previous research, at
least six repetitions are required for words to be acquired.

More repetitions of collocations are necessary, judging from the finding
that mostly one or two occurrences of collocations were observed in the
target textbooks in this research.

However, a few collocations are used intensely. This intense repetition of a few collocations is partly due to the characters and topics used in the textbooks. For example, *New Horizon* has several foreign characters who are from various countries, and Japanese characters who live in foreign countries. They introduce their home countries or foreign countries where they live by using common collocations such as "look at" and "live in", which leads to the frequent use of these collocations.

Another example is "play soccer". "Play soccer" is not used intensely within one particular topic, but is distributed over several topics, being spread over the textbooks, such as showing characters' preferences, interviewing a soccer player, and asking questions of a Brazilian soccer coach. Consequently, "play soccer" appears multiple times (4 times).

The results indicate that the *New Horizon* textbooks do not adhere to any immediately discernible policy regarding choice of collocations and their frequencies.

6. Limitations and further research

This research has the following limitations:

1. The textbooks examined are limited to those from one publisher of English textbooks (*New Horizon*) for junior high schools in Japan.

Currently, there are six publishers of English textbooks for junior high schools authorized by MEXT. Thus, other publishers of English textbooks should be analyzed and compared to get a fuller picture of collocations used in junior high school textbooks.

2. Observed collocations are limited to verb-related collocations.

There are various types of collocations for Japanese students to develop. Verb-related collocations are only part of them. Further research should study other types of collocations (e.g. noun-noun, adjective-noun) to cover a variety of collocations.

3. Collocations are selected only from the main sections of the textbooks.

In the corpus-making process, exercises and basic sentences are excluded to observe the actual state of collocations included in the contents (the main sections) of the textbooks. However, the goal of the textbooks is to share information and communicate learners' ideas through engaging in all parts of the textbooks, including the main sections, exercises and basic sentences. To reach a full picture of the textbooks from the point of view of collocations, all parts of the textbooks should be treated.

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