A Correlation Survey Between YL and Lexile Scores in Books for Extensive Reading: A Proposal for a Revised Conversion Table

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The *Yomiyasusa Level* (YL) is a readability measurement given for Japanese readers to develop their extensive reading (ER) practices. It is, however, rarely used outside of Japan, and even in Japan, many international teachers are apparently not familiar with this measurement. One possible reason for this is the paucity of explanation in English on what YL is and the meaning of its scores. If they are unclear, it will be difficult for teachers to guide students using this framework. This study investigated the YL and Lexile scores of 2,984 books from 43 series from August to October 2020. The purpose of this research was to explore the correlation between the scores in the two readability measurements by adopting a more robust method and to revise the YL to Lexile conversion table proposed by the author's previous study. The YL scores were taken from an ER guidebook by Furukawa and Kanda (2013), and the Lexile scores were obtained using the Lexile search tool, Find a Book. The correlation between the two scores based on nearly 3,000 books was high (r = .73), and it was considered possible to revise the conversion table. When revising, several YL bundles within a range were made, and the means of Lexile were obtained from the books that were categorized in each bundle. Furthermore, the Lexile conversions with a range were estimated for each bundle so that approximately 80% of the books in the bundle would fit in the range. By categorizing and bundling, the revised version of the YL to Lexile conversion table was proposed in the range of YL 0.1 – YL 6.5, and 120L – 1070L. This conversion table shows an approximate conversion from Lexile to YL, and vice versa. The table can also be used to incorporate more materials whose Lexile scores are available in ER by converting them into YL estimates, which may expand the possibility of more diverse ER practices.

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Introduction

Extensive reading (ER) is a promising instructional and learning methodology that provides a large amount of input in the target language. Most students in Japan learn English as a foreign language (EFL), in which they usually do not have sufficient exposure to the target language for acquisition. ER is shown to be effective in providing input (Kadota, 2014; Nation, 2013), and has been gaining popularity in many schools and institutions in Japan since the 2000s (Takase, 2010).

Two factors were considered regarding the popularity of ER in Japan since the turn of the century. The first factor is *tadoku sangensoku*, or the three ER principles advocated by Sakai (2002). The three principles are as follows: (1) read what you can enjoy without a dictionary, (2) skip unknown words, and (3) stop reading if it is boring or too difficult. While teachers make minor modifications to suit their teaching situations, these basic principles seem to serve as the most referenced guidelines in ER instruction in Japan. Sakai's learner-friendly principles have made it possible for even reluctant learners to engage in reading by lowering their mental barrier to English, and have provided a new way for fun exposure to ER (Nishizawa, Yoshioka, & Ichikawa, 2017; Takase, 2012a). In addition, the learners' initiative to select books based on their interest and ability and to read at their own pace has added new value of autonomous and independent English learning, not found in the conventional teacher-led class with a single textbook. However, leaving book selection to learners means that teachers are responsible for carefully monitoring whether each student chooses an appropriate book at the right level. If learners choose a book that does not suit their taste and English ability, they cannot enjoy reading. If they cannot enjoy reading, they cannot continue ER for a long time. If they cannot continue ER for a long time, the time spent on reading will not be sufficient for English improvement (Nishizawa, Yoshioka, & Fukada, 2010; Nishizawa, Yoshioka, & Ichikawa, 2017). As a result, they may give up ER as ineffective or boring. To avoid this vicious circle, book selection is vital for successful ER (Lee & Ro, 2020; Nishizawa, Yoshioka & Nagaoka, 2017; Waring, 2000). Learners will probably not have trouble choosing a book of their interest because they know what they like; however, particular attention should be paid to whether they are choosing a book at the right level for fluent reading. In some cases, learners read books beyond their ability even if they feel the levels are appropriate, resulting in ineffective outcomes (Nishizawa, Yoshioka, & Fukada, 2010; Takase, 2010; Takase & Otsuki, 2011). As such, learners are encouraged to start reading books written in easily comprehensible English or they should adopt the style of "Start with Simple Stories" (SSS) (Furukawa, 2010; Takase, 2010). In making the SSS style feasible, *Yomiyasusa Level* (YL) readability measurement has served as an essential indicator of book difficulty for Japanese learners of English.

The development of YL is the second factor in expanding ER practices in Japan. While ER in many countries uses graded readers (GR) as reading material (Day & Bamford, 1998; Nation & Waring, 2013), ER in Japan usually uses a complex mixture of books from various types, genres, and publishers, including books for English-speaking children (Furukawa, 2010; Furukawa & Kanda, 2013; Takase, 2009).

GRs are books especially written for learners of English as a foreign language with

strict vocabulary control and with consideration of other factors affecting comprehensibility, such as grammatical difficulty, sentence complexity, use of illustrations, and simplicity of plot (Nation & Waring, 2019, p. 17).

In addition to GRs, many Japanese ER practices employ two other groups of books as reading material, one of which is leveled readers (LR), originally written for English-speaking children to guide them gradually from easy books to longer and more complex books by providing several levels. One of the representative LR series is the *Oxford Reading Tree* (*ORT*), published by Oxford University Press. ORT is a series of supplementary readers used in approximately 80% of elementary schools in the United Kingdom (Furukawa & Miyashita, 2007), and contains over 800 titles rooted in reading for pleasure and with synthetic phonics at its heart (Oxford University Press, n.d.). ORT is one of the most popular series in the early stages of ER in Japan (Furukawa, 2010; Takase, 2010).

The other group is the non-leveled children's books (CB), which includes picture books, chapter books, literature for young adults, and classical stories for children. *The Magic Tree House* (MTH) series by Mary Pope Osborne is one of the most popular CB titles read by Japanese EFL learners. Most ER programs in Japan combine books from these three groups.

Some researchers (e.g., Beglar & Hunt, 2014; Webb & Macalister, 2013) are skeptical about using LR and CB in ER programs because of the unsimplified texts with a high percentage of unknown words. As the lack of vocabulary knowledge hinders fluent reading and comprehensible input, simplified graded readers are recommended for EFL learners (Nation, 2001). In Japan, however, LR and CB are often used from the early stage of ER because easy LR and CB allow certain Japanese EFL beginner learners having difficulty reading the easiest levels of GR to start in their comfort zone. In other words, LR and CB play a role in filling the gap below the starter level of GR and between the grades of GR. As such, the lower levels in ORT are widely used as a smooth starter of ER, assuming that they are easier than the lowest level of the GR series from major publishers. This situation, in turn, aroused the necessity of indicating the readability level of all books on the same scale. YL has responded to this need by setting the difficulty level for as many books as possible that can be used in Japanese ER. The indication of readability on the same scale has allowed more combinations and recommendations for suggested books compared to GR-based instruction. A wide range of books produced by the development of YL may have made it possible to meet the detailed needs and levels, leading many Japanese EFL learners to enjoy ER according to their requirements.

The objective of this research

YL is a readability measurement for Japanese learners of English and is rarely used outside of Japan. Even in Japan, it seems that many international teachers are not familiar with this measurement. One possible reason for this is that there is not enough explanation in English on what YL is and the readability level of its scores. If they are unclear, it will be difficult for teachers to guide students using this framework. However, probably because YL was created by Japanese learners and teachers of English, it seems that it has been well understood and widely used as a reliable measurement by many Japanese teachers. In addition, thanks to many years of their efforts, the YL scores

for approximately 14,000 books are available in an ER guidebook by Furukawa and Kanda (2013), which is a great teaching resource. Analyzing correlations with other readability measurements and finding converted values not only provides a better understanding of YL but also helps teachers who are unfamiliar with YL to try to employ it in their teaching. Since YL is an intuitive readability measurement for Japanese learners of English (Takase, 2009), it can be used effectively, especially in ER programs in Japan, as its scores reflect readability that may not necessarily match the intuition of international teachers.

Based on this awareness, Fujii (2017) dealt with the Lexile Framework for Reading (hereafter, Lexile), an educational tool that uses a measure called a Lexile to match readers with reading resources, and investigated the score correlations with YL. In this study, Fujii investigated both the YL and the Lexile scores of 2,318 books that are often used in the early stage of ER in Japan (444 books from 10 GR series, 1,596 books from 11 LR series, and 278 books from 14 CB series) from June to December 2016. After confirming a high positive correlation between the two scores in the result of all the books (r = .70), he proposed a YL to Lexile conversion table in which the approximate conversion values of Lexile scores for YL 0.1 to YL 3.3 were suggested. However, there were some limitations in the conversion table that required revision. The first limitation concerned the following method. In the survey, two different tools—Find a Book (FAB) and Lexile Analyzer (LA) on the Lexile website—were used to obtain the Lexile scores. While the official scores for books registered in Lexile's database were obtained using FAB, text files had to be made to obtain their Lexile scores by using LA for books that were not in the database. Although the two search tools were not mixed up in the single series investigation, the problem was that the author did not receive official instructions on making text files for LA investigation, which may have caused a slight fluctuation in the scores obtained by LA. The second limitation was that both the YL and Lexile scores can change over time. In fact, the Lexile scores changed in some books after a few years following the survey in 2016, although the YL scores in Furukawa and Kanda (2013) remained unchanged.

Therefore, in the present study, only those series were selected for which the official Lexile scores were obtained by using FAB. This study investigated the YL and Lexile scores of 2,984 books from 43 series (976 books from 12 GR series, 1,340 books from nine LR series, and 668 books from 22 CB series) from August to October 2020. The purpose of this research was to explore the correlation between the latest scores in the two measurements and to propose a revised version of the YL to Lexile conversion table based on the survey.

YL and Lexile

YL was established by Akio Furukawa from the SSS Study Group in cooperation with the Japan Extensive Reading Association members. In the YL framework, the difficulty of books is rated on a 100-point scale, from YL 0.0 to 10.0. The smaller the number, the easier it is to read. YL 0.0 is for a picture book without any words except for the title, and YL 10.0 is for a book that is too difficult for Japanese EFL learners to read extensively. The numerical values represented by YL are determined subjectively by Japanese learners and teachers of English based on factors such as word count, the presence and size of illustrations in a book, the simplicity of content,

the size of the font, and the familiarity of the topic, in addition to the vocabulary and grammar level as well as the average length of a sentence (Furukawa, 2014; Takase, 2012b). Among these factors, rating largely reflects the word count of books (Holster, Lake & Pellowe, 2017), meaning that a book with longer text is generally given a high YL score.

Lexile, on the other hand, was founded in 1989 to help English readers navigate the path in school, college, and careers by MetaMetrics, an educational research organization based in North Carolina, USA. It is used in approximately 180 countries worldwide, and Lexile scores have been assigned to more than 100 million books and articles (Lexile Framework for Reading, n.d.). In the Lexile framework, by combining word frequency from a 600-million-word corpus with sentence length, the difficulty of reading texts is calibrated against test items using Rasch analysis (Holster, Lake & Pellowe, 2017).

The Lexile scores are used to show the difficulty level of the text and the individual reading ability on the same scale, helping to select a level that suits one's ability and grasping the reading ability progress objectively. The Lexile levels are represented by a number followed by an "L," such as 1000L, and run from BR300L to 2000L, in which lower scores reflect easier readability for books and lower reading ability for readers. A score below 0L is assessed as BR or Beginning Reader, and the score of BR100L indicates that the Lexile score is 100 units below 0L. When a person has the same Lexile level as a book, 75% comprehension is predicted, and the 75-percent comprehension rate is targeted reading, which is appropriate for independent reading. Text difficulty between 100L lower and 50L higher than his or her Lexile is considered to be at the appropriate level. Approximately 90% comprehension is predicted when a person's ability exceeds book difficulty by 250L, and only 50% comprehension is predicted when book difficulty exceeds a person's ability by 250L (Sick, 2008; Stenner, Burdick, Sanford & Burdick, 2006); for example, if a person's reading ability is 1000L, 75% comprehension is predicted from a book with 1000L, and books between 900L and 1050L are recommended. If the person reads a book with 750L, 90% comprehension is predicted, and if the person reads a book with 1250L, only 50% comprehension is predicted. Based on the ER guidelines posited by Furukawa and Kanda (2013), one should choose a book from which one can gain 70% to 90% comprehension. If Lexile is used for ER, the Lexile level of books should be about equal to or lower than the learner's Lexile level.

Factors such as the size of letters, the presence of illustrations, or the familiarity of topics are not considered, and the values are determined by applying a formula in which statistical characteristics of the text, such as average number of words per sentence or syllables per word, as proxies for syntactic complexity and semantic difficulty are used (Sick, 2008). Lexile levels undergo a more systematic and objective process compared to YL.

Survey

Materials

In this study, 43 series from GR, LR, and CB were selected. There were two criteria for series selection. The first criterion was that the YL data can be obtained from the guidebook by Furukawa and Kanda (2013), and the series are used in many ER practices in Japan. The second criterion was that the Lexile official data for many books in the series can be obtained from

the Lexile database using FAB. Based on these criteria, due to the absence of official scores in most of their titles in the database, such popular series as *ORT*, *Macmillan Readers*, and *Cambridge English Readers* were excluded from the survey.

The books surveyed in this study comprised 976 books from 12 GR series, 1,340 books from 9 LR series, and 668 books from 22 CB series. Based on the series division by Furukawa and Kanda (2013), the four popular writers, Eric Carle, Andrew Clements, Leo Lionni, and Roald Dahl, whose works are often enjoyed in Japanese ER were used as series categories in the CB group (i.e., *Carle*, *Clements*, *Lionni*, and *Dahl*). Some new titles other than those listed in Furukawa and Kanda were added to the survey if their YL scores were fixed in the series. Specifically, as *Mr. Putter & Tabby* (*MPT*), *Stink*, and *Who Was* series in the CB group had the same YL scores in their series (i.e., YL 1.2, YL 3.0, and YL 3.3, respectively), some newly released titles were added to the survey with their fixed YL. ER books written in the manga format or assessed as GN (Graphic Novel) code in Lexile, and ER books written in the poetry or script format or assessed as NP (Non-Prose) code were excluded from the survey. Although it is impossible to survey the Lexile scores for all the 14,000 titles listed in a guidebook by Furukawa and Kanda, nearly 3,000 ER books should serve as a sufficiently large sample to revise a conversion table.

The levels and number of books investigated in the present study are shown with their YL range in Table 1 (GR), Table 2 (LR), and Table 3 (CB). The series name is often shown with their conventional abbreviations (e.g., FRL for the *Foundations Reading Library* series, and OBW for the *Oxford Bookworms Library* series). The levels are conventionally shown by adding a number indicating the level after the abbreviation of the series (e.g., FRL1 for Level 1 of the FRL series, and OBW0 for the starter level of the OBW series). These abbreviations are based on the guidebook by Furukawa and Kanda (2013) and adopted in this study.

Table 1
ER Book Series in the GR Group

Series (Abbreviation)	Level	YL	No. of books
Compass Young Learner's Classics (CYL)	CYL1 – CYL6	0.6 – 2.3	59
Footprint Reading Library (FPR)	FPR1 – FPR8	2.1 – 5.8	100
Foundations Reading Library (FRL)	FRL1 – FRL7	0.6 – 1.3	42
Oxford Bookworms Library (OBW)	OBW0 – OBW6	0.9 – 5.8	221
Oxford Classic Tales (OCT)	OCT1 – OCT5	0.7 – 1.4	32
Oxford Dominoes (ODM)	ODM0 – ODM3	0.9 – 3.3	91
Oxford Dolphin Readers (ODR)	ODR0 – ODR4	0.3 – 0.7	40
Oxford Read and Discover (ORD)	ORD1 – ORD6	1.1 – 2.7	60
Pearson Kids Readers (PGK)	PGK1 – PGK6	0.4 – 2.2	81
Pearson English Readers (PGR)	PGR0 – PGR6	0.8 – 6.3	185
Scholastic ELT Readers (SCE)	SCE1 – SCE4	2.0 – 3.7	43
Scholastic Popcorn ELT Readers (SCP)	SCP1 – SCP3	0.7 – 0.9	22
Total			976

Table 2
ER Book Series in the LR Group

Series (Abbreviation)	Level	YL	No. of books
Green Light Readers (GLR)	GLR1 – GLR2	0.4 – 0.8	26
I Can Read! (ICR)	ICR0 – ICR4	0.3 – 2.7	285
Let's Read and Find Out (LRFO)	LRFO1 – LRFO2	1.7 – 1.8	94
Penguin/ Puffin Young Readers (PGY)	PGY1 – PGY4	0.4 – 2.8	105
Ready-to-Read (RTR)	RTR0 – RTR3	0.4 – 1.8	210
Scholastic Readers (SCR)	SCR1 – SCR4	0.3 – 2.4	151
Step into Reading (SIR)	SIR1 – SIR5	0.3 – 2.7	207
Usborne First Reading (UFR)	UFR1 – UFR4	0.4 – 0.9	88
Usborne Young Reading (UYR)	UYR1 – UYR3	0.9 – 3.3	174
Total			1,340

Table 3
ER Book Series in the CB Group

Series (Abbreviation)	YL	No. of books
A to Z Mysteries (ATZ)	3.3	26
Eric Carle (Carle)	0.3 – 2.3	18
Curious George (CG)	0.6 – 1.8	26
Cam Jansen Mysteries (CJM)	2.5	33
Andrew Clements (Clements)	3.3 – 4.3	15
Clifford the Big Red Dog (Clifford)	0.8	29
Roald Dahl (Dahl)	2.5 – 5.5	17
Deltora Quest (Deltora)	5.0	15
Franny K. Stein (FKS)	2.7	7
Froggy (Froggy)	0.9	19
Leo Lionni (Lionni)	0.8 – 2.0	15
Mr. Putter & Tabby (MPT)	1.2	25
Marvin Redpost (MRP)	3.0	8
Magic Tree House (MTH)	2.7 – 2.9	55
Mercy Watson (MW)	2.1	6
Nate the Great (Nate)	1.3 – 2.0	26
Rainbow Magic (RBM)	2.3	122
Roscoe Riley Rules (RRR)	3.0	7

Stepping Stones (SS)	2.5 – 3.5	37
Stink (Stink)	3.0	10
Who was… (Who was…)	3.3	122
Zack Files (ZF)	3.3	30
Total		668

Method

The study was conducted from August to October 2020, four years after the previous survey. The search tool FAB on the Lexile website was used to obtain the official Lexile scores. The scores were investigated for all the titles listed in Furukawa and Kanda (2013) in all the series listed in Tables 1 to 3. Among them, only books with both YL and Lexile scores were included in this study. After the score survey, the books were organized by series and level, and the mean and standard deviation were calculated. The correlation coefficient between the two measurement scores in each series was then investigated using the Pearson product-moment correlation. In addition, the mean and standard deviation of the books' word count in each series and level were also calculated to confirm whether they are highly correlated with YL scores, as pointed out in previous studies (Furukawa, 2010; Holster, Lake & Pellowe, 2017).

The YL scores were obtained from Furukawa and Kanda's (2013) guidebook. The scores were sometimes indicated with a range such as YL 0.4 - 0.6. In such cases, the mean was used for investigation, and if there was a second decimal place, the second decimal place was rounded off; for example, if a book's YL was 0.4 - 0.6, then the mean of YL 0.5 was used for investigation; if a book's YL was 0.6 - 0.7, then the mean was YL 0.65; in this case, the second decimal place was rounded off and the mean was assigned as YL 0.7. After the means of the YL and Lexile scores were obtained through this process, the correlation coefficient between the two scores was investigated for all the books as well as for each group of the GR, LR, and CB. Based on the results, a revised version of the YL to Lexile conversion table was created.

Results

Correlation between YL and Lexile scores

The means and standard deviations of the YL and Lexile scores for each series and level of GR are shown in Table 4, those for LR are shown in Table 5, and those for CB are shown in Table 6. The tables also present the correlation coefficients between the two scores for each series in the right column. The correlation results of all surveyed books in GR, LR, and CB are shown at the bottom of each table. The mean and standard deviation of the word count for each series and level are also shown in the tables to obtain an overview of the relationship between the word count and the scores. The scatterplots for all the books in GR, LR, and CB are shown in Figure 1, 2, and 3, respectively.

Table 4
The Means and Standard Deviations of Word Counts, YL, and Lexile (GR) and correlation between YL and Lexile

Series	*n*	Word count	YL	Lexile	*r*
		M (SD)			
CYL1	10	327.4 (31.4)	0.6 (0.0)	318.0 (43.4)	.84
CYL2	10	510.3 (65.9)	0.8 (0.0)	385.0 (52.3)	
CYL3	10	816.9 (88.6)	1.0 (0.0)	465.0 (38.1)	
CYL4	10	1,299.5 (121.5)	1.4 (0.0)	491.0 (16.6)	
CYL5	9	1,747.8 (111.7)	1.9 (0.0)	508.9 (36.2)	
CYL6	10	2,679.1 (197.6)	2.2 (0.1)	560.0 (28.7)	
FPR1	15	1,016.6 (56.5)	2.1 (0.0)	740.0 (69.5)	.93
FPR2	15	1,068.0 (98.4)	2.5 (0.0)	759.3 (78.9)	
FPR3	15	1,389.6 (224.8)	3.3 (0.0)	843.3 (54.6)	
FPR4	15	1,555.1 (234.2)	3.8 (0.0)	930.7 (51.8)	
FPR5	10	2,077.4 (496.0)	4.3 (0.0)	985.0 (66.0)	
FPR6	10	2,353.6 (655.7)	4.8 (0.0)	1058.0 (49.6)	
FPR7	10	2,668.8 (769.3)	5.3 (0.0)	1138.0 (85.1)	
FPR8	10	2,826.4 (629.4)	5.8 (0.0)	1192.0 (40.8)	
FRL1	6	560.7 (52.3)	0.6 (0.0)	293.3 (49.3)	.74
FRL2	6	714.0 (35.9)	0.7 (0.0)	393.3 (60.6)	
FRL3	6	785.0 (97.2)	0.8 (0.0)	426.7 (64.1)	
FRL4	6	1,347.5 (56.4)	0.9 (0.0)	465.0 (51.7)	
FRL5	6	1,534.3 (220.3)	1.1 (0.0)	455.0 (41.4)	
FRL6	6	2,496.7 (146.9)	1.2 (0.0)	496.7 (12.1)	
FRL7	6	2,686.0 (258.7)	1.3 (0.0)	495.0 (12.2)	
OBW0	16	1,522.0 (167.0)	0.9 (0.1)	338.1 (76.2)	.54
OBW1	52	5,600.0 (570.6)	2.1 (0.0)	568.7 (197.4)	
OBW2	52	6,634.8 (817.0)	2.7 (0.0)	658.3 (166.0)	
OBW3	44	10,496.8 (1,103.5)	3.3 (0.0)	723.0 (159.8)	
OBW4	30	16,200.6 (1,450.6)	3.9 (0.2)	796.0 (168.8)	
OBW5	15	24,641.6 (1,997.6)	4.8 (0.0)	722.0 (145.9)	
OBW6	12	30,629.3 (1,797.9)	5.8 (0.0)	841.7 (112.6)	
OCT1	10	541.8 (90.6)	0.7 (0.0)	109.0 (63.0)	.66
OCT2	8	706.8 (76.1)	0.8 (0.0)	141.3 (54.6)	
OCT3	6	1,086.7 (165.1)	0.9 (0.0)	418.3 (52.3)	
OCT4	4	1,553.3 (68.5)	1.0 (0.0)	362.5 (87.7)	
OCT5	4	2,678.3 (273.0)	1.4 (0.0)	385.0 (73.7)	

ODM0-	13	1,297.9 (222.3)	0.9 (0.0)	416.2 (222.3)	
ODM0+	6	3,393.7 (582.5)	1.2 (0.1)	546.7 (90.7)	
ODM1	40	5,497.1 (550.4)	1.9 (0.1)	500.0 (160.5)	.57
ODM2	18	9,021.9 (718.7)	2.7 (0.0)	629.4 (105.7)	
ODM3	14	14,026.6 (1,586.6)	3.3 (0.0)	735.7 (126.4)	
ODR0	8	63.1 (9.0)	0.3 (0.0)	3.8 (10.6)	
ODR1	8	85.6 (9.8)	0.4 (0.0)	43.8 (93.2)	
ODR2	8	192.8 (31.8)	0.5 (0.0)	132.5 (122.8)	.83
ODR3	8	303.5 (46.4)	0.6 (0.0)	286.3 (121.8)	
ODR4	8	624.8 (92.3)	0.7 (0.0)	488.8 (156.5)	
ORD1	10	683.5 (15.7)	1.1 (0.0)	422.0 (69.7)	
ORD2	10	829.4 (15.9)	1.3 (0.0)	477.0 (64.6)	
ORD3	10	1,315.4 (60.2)	1.5 (0.0)	647.0 (83.4)	.86
ORD4	10	1,700.8 (38.7)	1.9 (0.0)	710.0 (70.4)	
ORD5	10	3,421.5 (51.4)	2.3 (0.0)	855.0 (92.6)	
ORD6	10	3,759.6 (59.4)	2.7 (0.0)	839.0 (80.1)	
PGK1	14	121.1 (17.0)	0.4 (0.0)	224.3 (39.4)	
PGK2	15	259.0 (34.3)	0.6 (0.0)	394.0 (57.7)	
PGK3	15	747.5 (29.6)	0.8 (0.0)	488.7 (45.0)	.76
PGK4	13	1,129.1 (62.2)	1.2 (0.0)	504.6 (46.3)	
PGK5	12	2,118.8 (82.3)	1.6 (0.0)	544.2 (51.4)	
PGK6	12	3,378.9 (163.2)	2.2 (0.0)	605.0 (127.9)	
PGR0	16	955.7 (148.5)	0.8 (0.0)	305.6 (58.4)	
PGR1	21	2,293.8 (1,033.0)	1.1 (0.1)	418.6 (145.7)	
PGR2	36	7,319.8 (2,150.8)	2.5 (0.1)	448.1 (130.7)	
PGR3	48	11,180.6 (3,213.1)	3.4 (0.1)	607.1 (92.9)	.76
PGR4	25	16,992.6 (4,667.5)	4.5 (0.2)	666.0 (166.4)	
PGR5	21	28,182.5 (7,479.3)	5.3 (0.2)	792.9 (146.7)	
PGR6	18	32,185.3 (2,540.5)	6.3 (0.0)	831.7 (125.1)	
SCE1	10	4,261.2 (961.1)	2.0 (0.1)	477.0 (34.0)	
SCE2	15	7,943.6 (1,933.5)	2.7 (0.1)	572.7 (61.6)	.67
SCE3	13	10,934.9 (3,489.4)	3.3 (0.1)	613.8 (93.3)	
SCE4	5	14,785.4 (591.4)	3.7 (0.0)	604.0 (133.2)	
SCP1	9	549.9 (12.5)	0.7 (0.0)	375.6 (56.1)	
SCP2	6	840.0 (63.0)	0.8 (0.0)	406.7 (50.5)	.61
SCP3	7	1,093.7 (75.3)	0.9 (0.0)	457.1 (26.9)	
Total	976				.73

Figure 1
Scatterplot of YL and Lexile (GR)

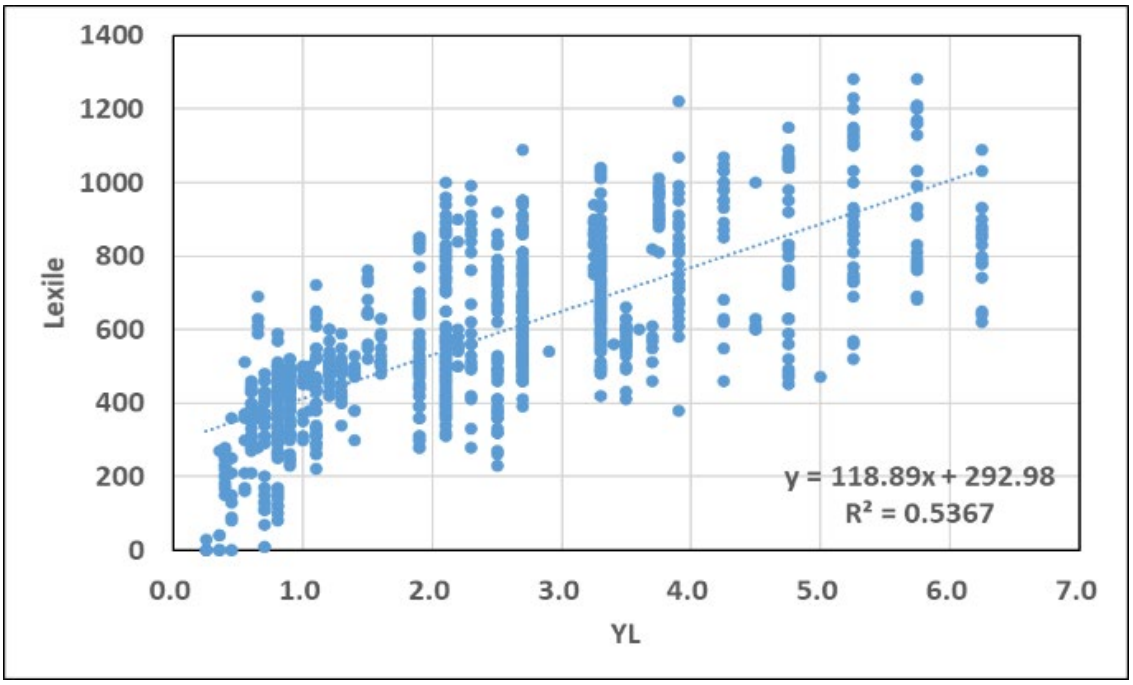


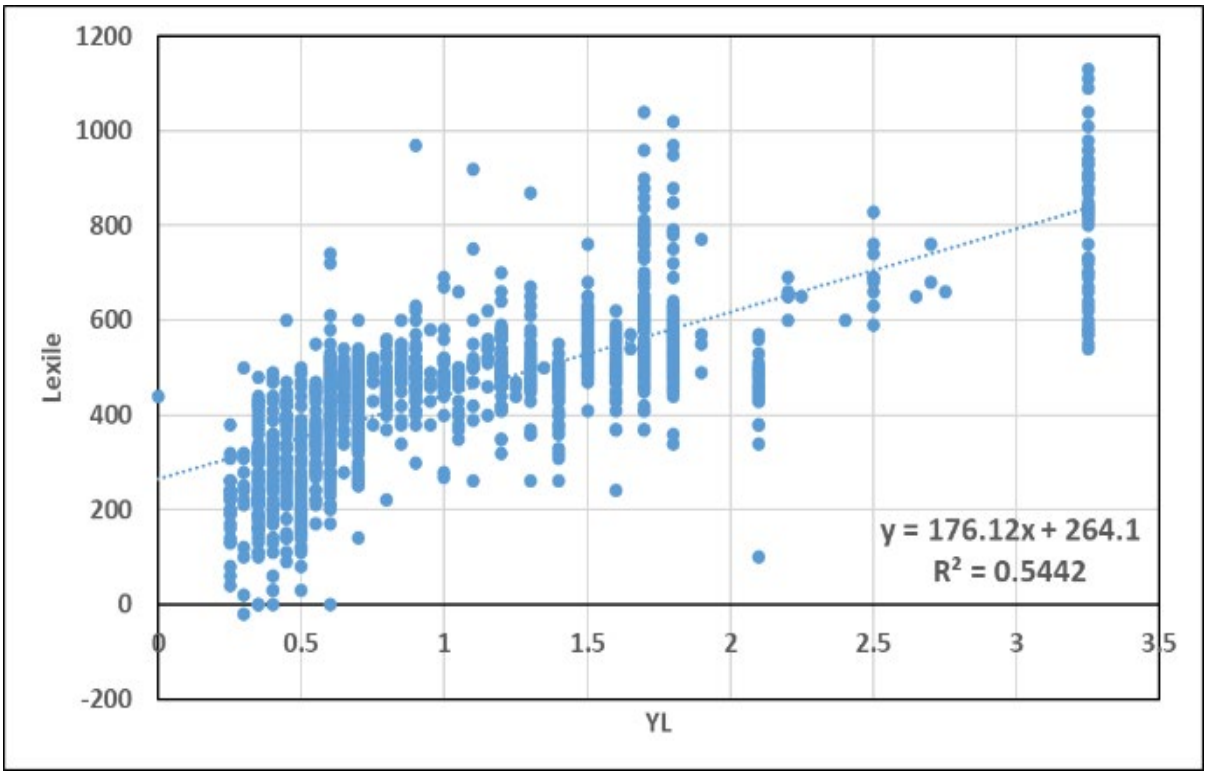
Table 5
The Means and Standard Deviations of Word Counts, YL, and Lexile (LR)

Series	*n*	Word count	YL	Lexile	*r*
		M (SD)			
GLR1	12	87.5 (28.0)	0.5 (0.1)	151.7 (90.2)	.81
GLR2	14	249.7 (104.8)	0.7 (0.1)	416.7 (70.9)	
ICR0	49	183.1 (57.4)	0.4 (0.1)	243.7 (87.1)	.55
ICR1	100	587.6 (302.1)	0.8 (0.2)	444.7 (70.1)	
ICR2	102	1,253.3 (502.7)	1.6 (0.3)	472.3 (65.7)	
ICR3	28	1,372.6 (302.1)	1.7 (0.1)	486.1 (52.3)	
ICR4	6	1,716.8 (88.0)	1.9 (0.3)	541.7 (98.7)	
LRFO1	30	676.4 (154.5)	1.7 (0.0)	513.3 (77.2)	.38
LRFO2	64	1,025.6 (280.4)	1.8 (0.0)	608.3 (119.0)	
PGY1	9	113.7 (26.7)	0.5 (0.1)	165.6 (66.5)	.77
PGY2	30	342.6 (202.4)	0.7 (0.1)	352.7 (91.6)	
PGY3	57	1,344.6 (415.0)	1.5 (0.2)	476.7 (87.2)	
PGY4	9	2,029.7 (646.8)	2.0 (0.3)	590.0 (91.7)	

RTR0	16	114.3 (40.2)	0.4 (0.0)	193.1 (83.9)	.69
RTR1	101	249.3 (88.6)	0.6 (0.1)	415.9 (100.2)	
RTR2	64	651.6 (175.9)	1.0 (0.1)	495.8 (54.1)	
RTR3	29	1,922.7 (499.3)	1.7 (0.1)	603.1 (80.0)	
SCR1	83	174.0 (82.2)	0.4 (0.1)	289.2 (118.3)	.72
SCR2	36	486.6 (247.3)	0.7 (0.2)	484.2 (141.6)	
SCR3	29	885.4 (382.3)	1.1 (0.2)	557.6 (115.5)	
SCR4	3	3,049.0 (569.9)	2.3 (0.1)	616.7 (28.9)	
SIR1	45	113.6 (37.9)	0.4 (0.1)	222.9 (104.1)	.79
SIR2	56	270.4 (75.5)	0.6 (0.1)	379.1 (73.4)	
SIR3	69	894.7 (288.0)	1.1 (0.2)	487.8 (85.9)	
SIR4	26	1,763.2 (411.3)	1.6 (0.1)	585.8 (111.4)	
SIR5	11	3,755.7 (606.2)	2.5 (0.1)	700.9 (67.3)	
UFR1	14	167.2 (26.5)	0.4 (0.0)	310.7 (94.9)	.70
UFR2	23	256.6 (56.2)	0.5 (0.0)	363.0 (71.4)	
UFR3	25	506.4 (80.8)	0.7 (0.0)	452.8 (41.2)	
UFR4	26	715.2 (172.7)	0.9 (0.0)	486.9 (56.2)	
UYR1	58	1,460.3 (271.8)	1.5 (0.0)	568.3 (56.1)	.62
UYR2	62	2,486.7 (467.6)	1.7 (0.0)	657.9 (113.7)	
UYR3	54	5,039.7 (733.5)	3.3 (0.0)	802.2 (152.2)	
Total	1,340				.74

Figure 2

Scatterplot of YL and Lexile (LR)



Based on the results of Table 4 and Figure 1, as the means of YL in each GR series increase, those of Lexile also increase in most of them, leading to a high positive correlation between YL and Lexile scores (r = .73). A similar tendency between the two scores was also observed in LR. As shown in Table 5 and Figure 2, as the means of YL in each LR series increase, the means of Lexile also increase in all of them, showing a high overall positive correlation (r =.74).

The correlation between the scores and the word count of GR books was high in YL (r = .78), while it was lower in Lexile (r = .37). In the case of LR books, the correlation with the word count with YL was high (r = .89) and that with Lexile was also high (r = .70), although it was slightly lower than that with YL.

In contrast to GR and LR, the correlation between the two scores in CB books was medium, as shown in Table 6 and Figure 3 (r = .52). A possible reason for this may be that rating books in the CB group with YL needs more subjective judgment because they are not divided by grade or level. For instance, it is obvious that FRL2 is more difficult than FRL1 based on the word level and grammatical complexity or the level itself, making it easy to set YL scores. On the other hand, in rating the difficulty of ungraded books in the CB group, the intuition or impression from a book, such as the presence or absence of illustrations, the familiarity of expressions or themes, or the number of words in one page may play a bigger role. These subjective factors are different from the Lexile rating process, leading to a weaker correlation compared to those in GR and LR.

The correlation between word count and YL was high (r =.74), while that with Lexile was lower (r = .31).

Table 6

The Means and Standard Deviations of Word Counts, YL, and Lexile (CB) and correlation between YL and Lexile

Series	*n*	Word count	YL	Lexile	*r*
		M (SD)			
ATZ	26	8,355.7 (822.2)	3.3 (0.0)	580.4 (45.5)	-
Carle	18	425.8 (252.2)	0.8 (0.4)	422.2 (145.3)	.57
CJM	33	5,374.3 (506.8)	2.5 (0.0)	579.1 (53.8)	-
Clements	15	33,138.9 (18,319.0)	4.2 (0.3)	773.3 (80.1)	.46
Clifford	29	363.7 (67.3)	0.8 (0.0)	427.9 (66.1)	-
CG	26	874.2 (536.8)	1.0 (0.4)	517.3 (52.9)	.26
Dahl	17	20,874.1 (14,689.6)	4.4 (1.0)	790.0 (134.5)	.48
Deltora	15	31,411.9 (7,166.5)	5.0 (0.0)	710.7 (48.3)	-
FKS	7	4,264.4 (439.9)	2.7 (0.0)	808.6 (41.8)	-
Froggy	19	585.9 (62.0)	0.9 (0.0)	450.5 (94.0)	-
Lionni	15	530.0 (212.7)	1.9 (0.4)	579.3 (136.8)	.81
MPT	25	709.6 (121.5)	1.2 (0.0)	494.8 (40.9)	-

MRP	8	6,382.9 (1,139.2)	3.0 (0.0)	530.0 (49.9)	-
MTH	55	8,806.5 (3,633.7)	2.8 (0.1)	527.8 (50.0)	.18
MW	6	1,986.8 (165.9)	2.1 (0.0)	511.7 (33.7)	-
Nate	26	2,183.7 (596.1)	1.7 (0.3)	496.2 (61.3)	.09
RBM	122	4,323.4 (202.8)	2.3 (0.0)	739.5 (65.7)	-
RRR	7	6,137.3 (80.7)	3.0 (0.0)	555.7 (56.8)	-
SS	37	8,448.1 (3,188.0)	3.1 (0.3)	599.2 (147.3)	.09
Stink	10	7,511.4 (1,663.6)	3.0 (0.0)	542.0 (42.1)	-
Who was	122	7,459.3 (552.7)	3.3 (0.0)	801.3 (100.3)	-
ZF	30	6,293.5 (1,335.5)	3.3 (0.0)	491.3 (56.7)	-
Total	668				.52

Figure 3
Scatterplot of YL and Lexile (CB)

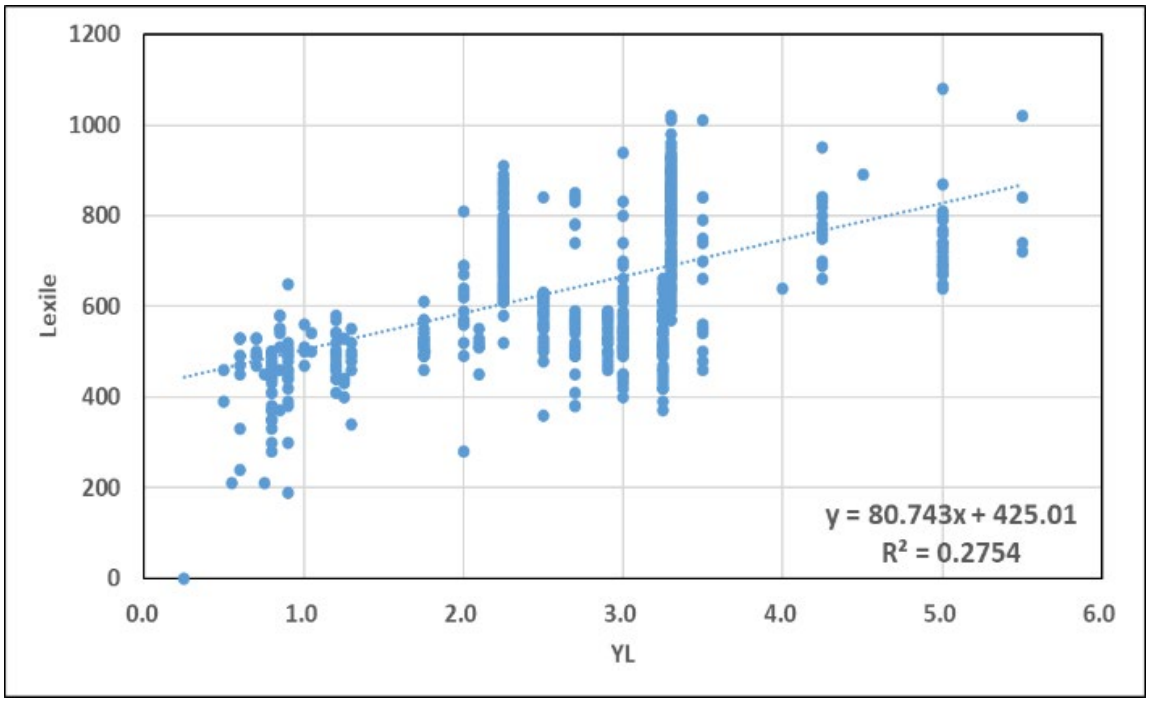


Figure 4 is a scatterplot of the YL and Lexile scores for all the 2,984 books. The correlation coefficient between the two scores was *r* = .73, indicating a high positive correlation. With this high correlation, it seems possible to create a revised version of the YL to Lexile conversion table.

The correlation between the word count of all books and YL was high (*r* =.79) and that with Lexile was medium (*r* = .43). For each case of GR, LR, CB, and all the books, it was YL that had a stronger correlation with the word count compared to Lexile, suggesting that the text length may be a big factor for Japanese learners of English that affects the readability level as Holster, Lake and Pellowe (2017) stated.

Table 7 lists all the results so far. In the table, each series and level are plotted at their YL scale on the vertical axis with the range from YL 0.1 to YL 6.3. Each of their Lexile means are shown in parentheses.

Figure 4
Scatterplot of YL and Lexile (All Books)

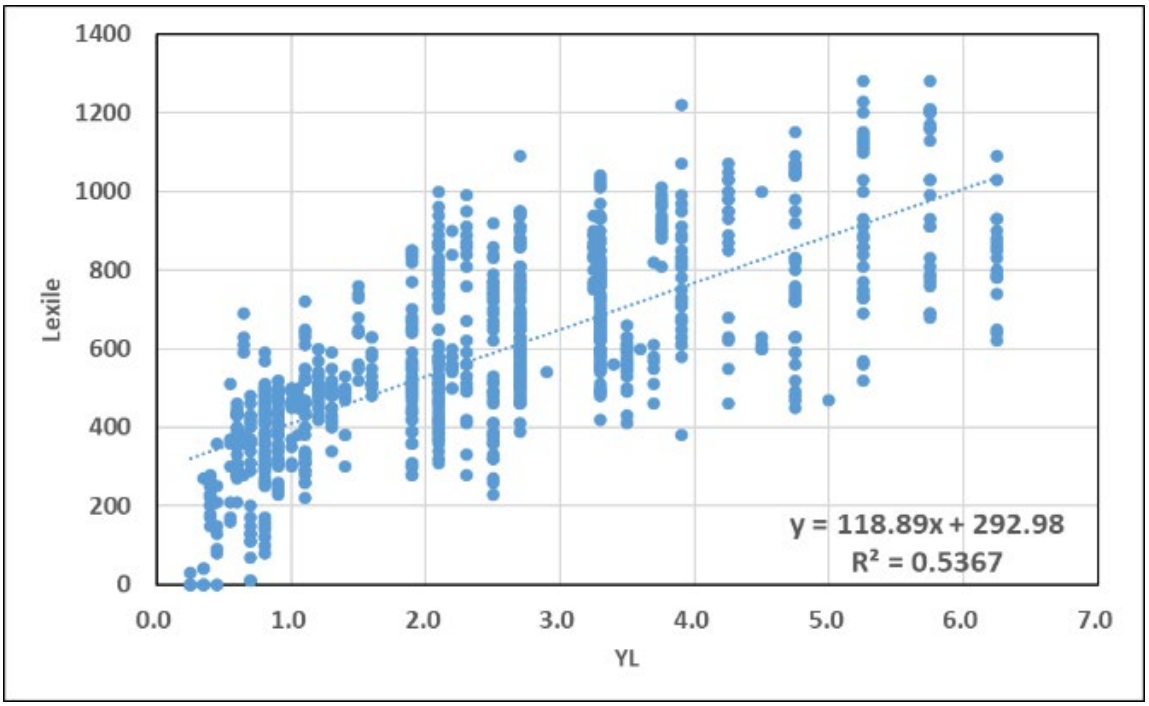


Table 7
Summary of the YL and Lexile Means in Series and Levels

YL	GR (Lexile)	LR (Lexile)	CB (Lexile)
0.1			
0.2			
0.3	ODR0 (3.8)		
0.4	ODR1 (43.8), PGK1 (224.3)	ICR0 (243.7), RTR0 (193.1), SCR1 (289.2), SIR1 (222.9), UFR1 (310.7)	
0.5	ODR2 (132.5)	GLR1 (151.7), PGY1 (165.6), UFR2 (363.0)	
0.6	CYR1 (318.0), FRL1 (293.3), ODR3 (286.3), PGK2 (394.0)	RTR1 (415.9), SIR2 (379.1)	
0.7	FRL2 (393.3), OCT1 (109.0), ODR4 (488.8), SCP1 (375.6)	GLR2 (416.4), PGY2 (352.7), SCR2 (484.2), UFR3 (452.8)	

0.8	CYR2 (385.0), FRL3 (426.7), OCT2 (141.3), PGK3 (488.7), PGR0 (305.6), SCP2 (406.7)	ICR1 (444.7)	Carle (422.2), Clifford (427.9)
0.9	FRL4 (465.0), OBW0 (338.1), OCT3 (418.3), ODM0 (416.2), SCP3 (457.1)	UFR4 (486.9)	Froggy (450.5)
1.0	CYR3 (465.0), OCT4 (362.5)	RTR2 (495.8)	
1.1	FRL5 (455.0), ORD1 (422.0), PGR1 (418.6)	SCR3 (557.6), SIR3 (487.8)	
1.2	FRL6 (496.7), ODM0+ (546.7), PGK4 (504.6)		MPT (494.8)
1.3	FRL7 (495.0), ORD2 (477.0)		
1.4	CYR4 (491.0), OCT5 (385.0)		
1.5	ORD3 (647.0)	PGY3 (476.7), UYR1 (568.3)	
1.6	PGK5 (544.2)	ICR2 (472.3), SIR4 (585.8)	
1.7		ICR3 (486.1), LRFO1 (513.3), RTR3 (603.1), UYR2 (657.9)	Nate (496.2)
1.8		LRFO2 (608.3)	
1.9	CYR5 (508.9), ODM1 (500.0), ORD4 (710.0)	ICR4 (541.7)	Lionni (579.3)
2.0	SCE1 (477.0)	PGY4 (590.0)	
2.1	FPR1 (740.0), OBW1 (568.7)		MW (511.7)
2.2	CYR6 (560.0), PGK6 (605.0)		
2.3	ORD5 (855.0)	SCR4 (616.7)	RBM (739.5)
2.4			
2.5	FPR2 (759.3), PGR2 (448.1)	SIR5 (700.9)	CJM (579.1)
2.6			
2.7	OBW2 (658.3), ODM2 (629.4), ORD6 (839.0), SCE2 (572.7)		FKS (808.6)
2.8			MTH (527.8)
2.9			
3.0			MRP (530.0), RRR (555.7), Stink (542.0)

3.1			SS (599.2)
3.2			
3.3	FPR3 (843.3), OBW3 (723.0), ODM3 (735.7), SCE3 (613.8)	UYR3 (802.2)	ATZ (580.4), Who was (801.3), ZF (491.3)
3.4	PGR3 (607.1)		
3.5			
3.6			
3.7	SCE4 (604.0)		
3.8	FPR4 (930.7)		
3.9	OBW4 (796.0)		
4.0			
4.1			
4.2			Clements (773.3)
4.3	FPR5 (985.0)		
4.4			Dahl (790.0)
4.5	PGR4 (666.0)		
4.6			
4.7			
4.8	FPR6 (1058.0), OBW5 (722.0)		
4.9			
5.0			Deltora (710.7)
5.1			
5.2			
5.3	FPR7 (1138.0), PGR5 (792.9)		
5.4			
5.5			
5.6			
5.7			
5.8	FPR8 (1192.0), OBW6 (841.7)		
5.9			
6.0			
6.1			
6.2			
6.3	PGR6 (831.7)		

Table 8
YL to Lexile Conversion Table

YL	*n*	Lexile Mean	Lexile Range	Word Count Mean
0.1-0.5	302	247.5	120-370	160.8
0.6-1.0	705	418.1	310-520	527.1
1.1-1.5	411	498.1	410-590	1,283.1
1.6-2.0	393	568.3	450-690	2,023.7
2.1-2.5	361	635.0	480-790	4,268.8
2.6-3.0	210	606.8	470-740	7,379.3
3.1-3.5	378	717.6	560-870	8,027.8
3.6-4.0	53	794.9	620-970	11,906.9
4.1-5.0	76	800.1	610-990	17,766.1
5.1-6.5	95	876.3	690-1070	24,935.5

YL to Lexile conversion table

The revised version of the YL to Lexile conversion table was created using the following three points as a guideline.

(1) Since not all the YL scores have enough books for the study, it is impossible to estimate the Lexile equivalent for each YL score. Further, it may be unnecessary to estimate a precise Lexile equivalent for each YL score because this research is based on the results of about 3,000 books selected for the study, meaning that the conversions can fluctuate depending on the books. Since a "perfect" conversion table cannot be completed as new books are published every year, it should be proposed within a certain range. Therefore, several YL bundles with ranges were created. Books were bundled by 0.5 from YL 0.1 to YL 4.0 (i.e., bundles of YL 0.1-0.5, 0.6-1.0, 1.1-1.5, 1.6-2.0, 2.1-2.5, 2.6-3.0, 3.0-3.5, and 3.6-4.0). Due to their small number of surveyed books, books of YL 4.0-5.0 (YL range 1.0) and YL 5.1-6.5 (YL range 1.5) were categorized into each bundle. Then, the Lexile means in each bundle were obtained from the books categorized there. The Lexile means can serve as a rough estimate of each YL bundle.

(2) It may not be sufficient to suggest only a single Lexile mean equivalent for each YL bundle. Just as YL has a range, giving a range to Lexile equivalents may lead to a better reflection of the results. However, if the ranges are too large, the usefulness of the conversion table will be reduced. In this study, following Fujii's (2017) study, the ranges for Lexile were set so that approximately 80% of the books in the bundle would fit. While books with extremely high or low scores were sometimes found in the bundle, they were treated as exceptions, and priority was given to including most of the books in the bundle.

(3) As shown in the previous section, the word count of books was strongly correlated with YL scores. From this result, word counts may be helpful as a reference for YL ratings. The mean word count in each bundle was also included in the conversion table for this purpose.

Discussion

The purpose of this paper was to investigate the correlation between YL and Lexile scores and revise a conversion table proposed by Fujii (2017) while adopting a more robust method by using only one search tool for the Lexile score survey. Based on the results of a study of approximately 3,000 English books, the correlation coefficients between YL and Lexile scores were shown to be high, especially in GR and LR. The revised conversion table, therefore, can indicate an approximate conversion from one measurement to the other, for books at levels up to about YL 6.5 or 1070L.

Although this research does not aim to lend superiority or inferiority to either measurement, making use of each advantage may bring about new and effective ER instruction.

Regarding Lexile, the following two characteristics are posited. First, Lexile may be useful when learners or teachers want to know the readability level of an English text itself. By understanding the text difficulty, learners are likely to reach a book that better suits their reading ability. As stated earlier, reading books beyond one's ability without considering their level may result in ineffective outcomes (Nishizawa, Yoshioka & Fukada, 2010; Takase & Otsuki, 2011). Lexile may provide ER with a perspective to understand text readability itself more precisely than YL. For the same reason, Lexile scores may be useful in grasping learners' reading ability progress or conducting text-based (without illustrations) reading comprehension tests; for example, FRL1, SIR2, and RTR1 are all assigned YL 0.6, on average (Table 7), but the Lexile means suggest that the texts of FRL1 are much easier than those of SIR2 and RTR1. When assessing learners' reading progress, teachers should refer to this type of information.

Second, Lexile is useful for rating the difficulty of CB books. Given that the word count and the proportion of illustrations are almost the same in several series, determining which series is more difficult than the other must rely on subjectivity. It is also difficult to rate the YL scores of CB books, which corresponds to the difficulty level in GR or LR. As the YL scores are also based on factors such as the presence and size of illustrations in a book (Takase, 2012b), Lexile can serve as a useful reference for learners who read an ungraded book that consists mostly of text and has few illustrations.

The following two points are discussed regarding the characteristics of the YL measurement. First, since YL was made with due consideration for beginner-level learners to start ER smoothly, the levels used in the early stage of ER are finely divided; for example, if a book is 450L, it could fall into any of the YL 0.6 to YL 2.0 range based on Table 8. However, many Japanese EFL learners experience a huge difference in difficulty between YL 0.6 and YL 2.0. As YL was developed through many ER practices in Japan, where the SSS style is emphasized, the readability of the early stage was carefully set to get many learners on the ER track smoothly by combining various books from GR, LR, and CB. From this point of view, YL may be especially useful for Japanese EFL learners in the early stages of ER.

Second, YL has an advantage in the Japanese context because it reflects subjective readability that cannot be explained only by vocabulary level and grammatical complexity. Some books contain cultural and

historical descriptions that are unfamiliar to the Japanese, and other books often use idiomatic expressions and puns. Further, some books apply a lot of vocabulary that English-speaking children use daily but are not found in English textbooks in Japan; for example, many Japanese EFL learners may wonder why a rabbit often appears in a book about Easter, and find it difficult to enjoy the trouble faced by Amelia in the *Amelia Bedelia* series (ICR2). YL, which was created and has been modified for a few decades, reflects the inductive intuition of Japanese learners and teachers of English.

Based on the above discussion, YL may be particularly suitable for ER beginners to get on the path of ER, and Lexile may be particularly useful for learners at the stage of reading ungraded books with few illustrations to find and decide which book to read next. The conversion table can be used to refer to the more suitable measurement.

Conclusion

YL is a widely adopted readability measurement in ER for Japanese learners of English, but little research has been done on its relationship to, and position in, another readability measurement that is used internationally. In other words, the meaning of YL scores has not yet been fully discussed in international ER research. This study investigated the YL and Lexile scores of 2,984 books from 12 GR series, nine LR series, and 22 CB series to explore the correlation between the two scores and to propose a revised version of the YL to Lexile conversion table by adopting a robust research method.

The results were that the two scores were highly correlated overall (r = .73), and the Lexile conversion table from YL 0.1 to YL 6.5 was revised and presented. This conversion table places YL scores in relation to Lexile, which may lead to a relative understanding of YL scores and the expansion of ER books by providing a new approximate YL score for a book whose Lexile score is already available. Furthermore, the characteristics of YL and Lexile were discussed, and the effective use of these measurements in the Japanese ER environment was suggested.

The conversion table in this study must be revised as the data changes in the future, which is a limitation of this study. However, the present study proposes an estimated conversion, which if provisional, will be a cornerstone of future research progress in this field because of its novelty. Regardless of which measurement learners or teachers use, understanding what each measurement is and knowing the meaning of the score may expand the possibilities of more effective ER practice.

The following two points were addressed as issues and directions for future research. First, by continuing this research and increasing the number of research books, the conversion table proposed in this study must be refined. Second, the role of ER in English education in junior high or senior high schools should be explored using a conversion table. This is due to the current lack of evidence on the relationship between the readability of textbooks used in schools and books for ER (Takase, 2010). Each school in Japan adopts an English textbook approved by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). However, little research has been done on the text readability in the MEXT-approved English textbooks in relation to that of ER books. As one of the few related studies in this area, Negishi (2013) investigated the Lexile scores of

New Crown, a junior high school English textbook approved by MEXT, and reported that the readability of the textbook for the first year was 210L, for the second year was 380L, and for the third year was 480L. He also reported that the Lexile means of the six MEXT-approved high school English textbooks for the first and second years were 540L to 850L. Referring to the Lexile means in Table 8, although the text difficulty from the first year to the third year of junior high school steadily goes up each YL bundle, there is a big difference in the difficulty of high school textbooks. It may be possible for ER to fill the gap between junior high school and high school, or the gap between high school grades by referring to the conversion table and offering ER books at the right level for the gap; for example, giving high school freshmen the assignment of reading as many books with YL 2.0 or lower as possible may provide guidance to fill in the gap between junior high and high school. Specific guidelines and their effectiveness, however, must be addressed in future research.

Acknowledgments

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