

The Agenda of The Reading Teacher Journal on Reading and Reading Skills: A Corpus Analysis in the Last Decade

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Abstract

Reading is one of the main skills to be learned and used in schools and through the entire life of an individual. Its crucial importance made reading one of the central topics in different academic disciplines such as education, psychology, linguistic and neuroscience. Advances in multidisciplinary approaches to and studies of reading gave us the reason to talk about the science of reading. Improvement in research into reading during the last century reveals the fact that different approaches emphasized the importance of partially different aspects of reading skills. Different approaches presented sound arguments for different priorities in teaching and learning of reading. For some decades ago strong dichotomic arguments were so sharp that in the United States the reading literature talked about 'the reading wars'. During the recent decades, the debate of reading and approaches to reading, reading skills and reading processes have changed. Studies of reading presented different arguments for partially different priorities. The Reading Teacher (RT) has for many decades been the one of the most important arenas for the presentation of new findings, ideas, arguments, and trends. Our present corpus-based study captured the frequent collocations and their usage in the RT publications – 952 articles comprising 3 548 008 words - during the last decade, 2012-2021. TreeTagger was used for part-of-speech tagging and CQPWeb/CWB framework was employed as the corpus interface in the analysis process. The findings clearly revealed that "reading comprehension" was the most frequently used collocation, and it has never weakened its position in the RT publications in the last decade. While instructional activities and processes like 'shared reading', 'during reading', 'while reading', and 'after reading' were given considerable attention, 'before reading' was almost forgotten. Findings also show that linguistic diversity among students, particularly in the US, also made an impact on the emerging of new topics and thus frequency of concepts like bilingual, multilingual, translanguaging, and coaching. Findings related to the ascending and descending trends reading collocations in RT publications regarding other aspects of reading, teaching of reading, and reading processes are discussed and some ideas for future research are presented.

Keywords:

Reading, Collocations, Corpus, Reading Comprehension



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Introduction

Reading is critical for children's success in school and social life. Therefore, the science of reading aims to explain the process of teaching and learning reading to educators, families, and students. This helps them to gain a deeper understanding of this vital skill. This research study can be considered as a new step towards understanding the reading skill. It is a result of a corpus-based analysis of the studies on reading and teaching reading published in the Reading Teachers (RT) in the last ten years, 2011-2021.

Reading skill has been the subject of research for those working in the fields of education, linguistic, cognitive science and cognitive neuroscience for years. While researchers working in the field of education and language focus on the applications of reading in the classroom and teaching methods, cognitive science and cognitive neuroscience focus on the cognitive processes of this skill and the functions of the brain during reading. According to the results of these studies, Seidenberg (2013) emphasizes that the reading-based functions of the brain and the mechanisms underlying students' basic reading skills can be explained with neuroimaging and computational models.

When it comes to the approaches to reading, one can find many similarities but also some differences. According to Anderson, Hiebert, Scott and Wilkinson (1985) "Reading is the process of constructing meaning from written texts. It is a complex skill requiring the coordination of a number of interrelated sources of information." (p. 7). The researchers emphasize the complexity of reading and the need to coordinate various sources of information. In another approach to reading Wixson, Peters, Weber and Roeber (1987) consider it as

"the process of constructing meaning through the dynamic interaction among: the reader's existing knowledge; the information suggested by the text being read; and the context of the reading situation." (p. 750).

Here one can see that the researchers emphasize the dynamic interaction between the reader's knowledge, the text being read, and the reading context.

Another approach to reading by Torgesen, Houston, Rissman and Kosanovich, (2007) is more result-oriented compared to the previous approaches.

The researchers take into account the competencies that students should acquire at the end of primary school and state the following: "...students be able to identify the words on the page accurately and fluently; that they have enough knowledge and thinking ability to understand the words, sentences, and paragraphs; and that they be motivated and

engaged enough to use their knowledge and thinking ability to understand and learn from the text." (p. 1).

They also stress the importance of accurate word recognition, thinking ability, motivation, and engagement in reading proficiency, as well as "knowledge". This last point as 'content knowledge' was given even more attention and seen as an important factor for reading in general and reading comprehension in particular by the American National Governors Association (2013) when they discuss the prerequisites for reading: "Reading proficiency requires three sets of interrelated skills that develop over time: language and communication, mechanics of reading, and content knowledge." (NGACBP, 2013 p. 3). Here they also identify 'language and communication' and 'mechanics of reading' along with content knowledge as important factors for reading proficiency.

Although these approaches to some extent emphasize different aspects of reading proficiency and the skills it encompasses, it is possible to say that they have similarities in some basic points; a) All of the statements acknowledge that reading involves the construction of meaning from written texts. b) They all recognize that reading proficiency requires a combination of skills and abilities. c) They all emphasize the importance of the reader's existing knowledge and engagement in the reading process.

Considering the components that the above mentioned approaches include regarding the reading skill, it can be said that it is a multidimensional and complex developmental process. Several researchers (Kendeou, van den Broek, White, & Lynch, 2009; Grabe, 2009) describe this process in two stages: One is lower-level processes, including word recognition, syntactic parsing, and meaning encoding, and the other is higher-level, including text model formation, situation-model building, inferencing, executive-control and strategic processing. It seems that the acquisition and development of reading skills is a gradual process that starts with the letter-sound relationship and leads to capturing and interpreting the meaning in the text.

The Focus of RT: evidence-based literacy instruction

RT is a respected journal in its field with its theoretical and applied studies on reading and teaching reading. The journal is published biannually by Wiley-Blackwell on behalf of the International Literacy Association (ILA, 2023). RT has a publishing policy that covers a wide range of topics related to literacy. Within the framework of this policy, publications are made in the form of theoretical and practical research, book reviews and sample applications. With these publications, the journal can be described as the

meeting point of teachers, researchers, policy makers and educators interested in literacy skills.

RT is a peer-reviewed journal. It publishes research-based best practices for literacy studies. The journal has a wide readership such as classroom teachers, literacy coaches, reading specialists, researchers, and teacher educators. The journal is also indexed in various academic databases and indexes such as Web of Science, Social Sciences Citation Index (Clarivate Analytics), SCOPUS (Elsevier), ERIC, ProQuest Professional Education and Academic Search Complete (EBSCO). It is true to claim that unlike several other academic journals, RT presents theoretical and methodological approaches to reading and teaching reading. In addition, RT publications have teaching and learning of reading its main area of focus. These qualities made RT as a journal of cutting-edge studies of reading and a respected voice of science of reading.

Previous studies on RT

The first one of the earlier studies of the focus of RT (Staiger, et al., 1992), with regard to reading, concluded that the articles in the journal from 1950 thru 1954 did the following: 1) They informed classroom teachers about current research and promising projects on teaching reading, 2) They provided practical information on classroom activities and reading materials for teachers and students, and 3) They provided information about the International Council for the Improvement of Reading Instruction and its local councils.

In the other five studies, researchers (Jerrols, 1992; Stahl & Fisher, 1992; Pearson, 1992; Dillon, et al., 1992 and Mohr, et al., 2017) analysed the articles in RT which were the milestones for trend topics and the journal through content analysis. For instance, Jerrols (1992) determined the topics as milestones in teaching reading from 1947 to 1991. Among these topics, elementary reading, secondary reading, suggestions for teachers, classroom reading teacher, reading comprehension, modern instructional techniques, parent-teacher cooperation, literacy-related drawings created by children, and reading educators were mentioned. One of the most striking points in this study was that RT published articles from countries such as Finland, then Russia, Bulgaria, Ukraine, Mexico and China after 1982.

Stahl and Fisher (1992) examined the first 20 years of RT and emphasized that the following four different reading related pedagogical issues were the major themes: a) Reading readiness, b) Word recognition, c) Reading comprehension, and d) Reading disabilities.

In the study conducted by Pearson (1992), the issues of RT between 1968-1990 were included. It was found that 22 different topics were addressed. Among these topics, the most recurring were the following:

a) Integrated language arts, b) Children's literature, c) Comprehension, d) Language and cultural influences, and e) Testing/assessment and administering reading programs.

Dillon, et al. (1992), on the other hand, identified the following most frequent article topics by quantitative analysis of 2,168 articles in RT between the years 1948-1991: a) Instructional strategies, b) Assessment, c) Children's literature, d) Emergent literacy/reading readiness, e) Attitudes/habits/interests, and f) Cross-cultural and reading problems

In a recent study, Mohr et al. (2017) examined the articles in RT published between 1992-2016 and found the following most frequently used concepts: a) Instructional, b) Children's literature, c) Writing, d) Attitudes/habits/interests, e) Comprehension, f) Teacher education, g) Assessment, h) Content reading, and i) Technology, and cross-cultural.

These findings, generally obtained by using keywords, are very important in terms of analysing the content of RT. However, there is another option through which RT as a journal of an outstanding role in the field of reading can be analysed. In our view a corpus-based study.

The aim of the present study

The aim of this corpus-based study is to add some valuable ideas and perspectives to the existing literature and expand our knowledge base. Through conducting a corpus-based study on the millions of words used in 952 articles published in RT during the period of from 2012 thru 2021, we identified the words which the concept of reading often form collocation with. By doing so, we aimed to answer the following research questions:

1. What are the most frequently used concepts in the RT Corpus?
2. What concepts frequently form collocations with "reading" in the RT Corpus? What is the distribution of these collocations by year?
3. What are the adjectives that form collocations with "reading" in the RT Corpus? What is the distribution of these collocations by year?
4. What are the verbs that form collocations with "reading" in the RT Corpus? What is the distribution of these collocations by year?
5. What are the major concepts in the first five and last five years of the RT Corpus?

We hope that the findings of our study will expand our knowledge about the advances in reading research and the current areas of focus in the science of reading.

Methodology

Corpus linguistics is primarily a quantitative approach, relying on numerical data representing words and phrases within corpora (McEnery & Hardie, 2011). Therefore, statistics plays a vital role in corpus linguistics by facilitating the effective processing and analysis of quantitative information (Brezina, 2018).

Corpora are the tools used for linguistic analysis of datasets, providing qualitative and quantitative data about a particular language. Corpus has been defined in the literature by considering its different characteristics. Sinclair (1991) defines a corpus as "a collection of texts selected and assembled according to certain linguistic criteria that can be used as examples of language", while Leech (1992) describes it as "a large amount of data collected in a digital environment (computer)". McEnery and Wilson (2001) define corpus as "a collection of texts carefully selected to represent a language", while Tognini-Bonelli (2001) defines it as "a collection of texts put together for linguistic analysis, supposedly capable of representing a language."

These conceptions of corpus emphasize three key elements of corpus features: a) They are "structured", b) They "consist of large amounts of data" and c) They are "computer-readable".

Thus, it is reasonable to consider a corpus as "a collection of large volumes of digitized language data brought together for a specific purpose." Studies using corpus provide information about the structure of the language, its use, finding and observing various patterns, the change and features of the language.

Corpus linguistics is a discipline that encompasses the preparation processes of corpora and studies using them. "Brown Corpus" (Kucera & Francis, 1967) is accepted as the first corpus prepared on digital platforms. With the increase in data processing and storage capacities, especially after the 1990s, large corpora such as British National Corpus (BNC) (2023), Corpus of Contemporary American English (2023) and Bank of English (2005) were prepared and corpus linguistics has become an accepted discipline. Corpora are also defined according to the "data" they contain. The ones that attempt to present a general profile of a language are referred to as "reference corpora", while the corpora prepared based on a specific topic or a particular type of text or source are called "specialized corpora". The corpus prepared within the scope of this study and serving as the main source of it is also a specialized corpus.

RT Corpus

The corpus for this study was created by including all the studies published online versions of the RT in the last decade (2012-2021). The main reason for taking the last ten years as a reference is that the content analysis of the journal was made with keywords until 2016 and the last five years were not resolved. Considering that the number of words used in the first five years would not be sufficient for a corpus analysis, the second fifth year backwards was also included in the study.

Online publications of RT in the last decade were recorded based on the year, volume and issue. The data were then transformed into raw text. Figures, tables, graphic information, and footnotes were excluded from the data. Each text was annotated with "year, issue, volume, keyword 1 and keyword 2" tags.

TreeTagger was used for part-of-speech tagging, and CQPWeb/CWB framework was employed as the corpus interface. The whole data formed a corpus of 3,548.008 words as one can see in the Table 1 below:

Table 1.
The Reading Teacher Corpus Metadata

Metadata	
Total number of corpus texts	952
Total words in all corpus texts (Token)	3.548.008
Word types in the corpus	54.295
Type/token ratio	0.0153

Collocations

Phillips (1983, 1985) offers the theoretical foundation for collocation networks, which examines the connection between collocates and macrostructure within a text. According to Phillips (1989), these networks, also referred to as "lexical networks," can be utilized to implement the psychological concept of a text's "aboutness." In essence, collocation networks serve to understand a text's central themes and ideas (Vaclav, McEnery, & Wattam, 2015).

In Reading Teacher, the concepts that formed collocations with the concept of reading were examined in the following three different ways: a) The first collocations (such as reading comprehension, close reading, reading recovery) consisted of the most frequently used concepts with reading regardless of the word types. b) In the second stage, concepts that described the concept of reading and collocated with an adjective or similar words (such as independent reading, oral reading and repeated reading) were examined. c) In the third stage, the verbs that formed collocation with reading were identified and discussed. Concepts that formed collocation with reading are classified within themselves.

Keywords list for sub-corpora

RT Corpus was divided into 2012-2016 and 2017-2021, and two different corpora were formed. These two corpora were compared in terms of concepts used in the first five years and the ones in the last five years. In this way, the concepts with ascending trend and the concepts with descending trend in the RT corpus.

Analysis

In the data analysis of RT, word forms and maximum window span were taken as +/-5 in determining the concepts that formed collocation with reading. In filtering the obtained collocations as word types, +/-3 distances and at least five (5) frequency values were taken into account.

Analyses were conducted considering the total number in the whole corpus, expected collocate frequency, observed collocate frequency, the number of texts they appeared in and log-likelihood values of the concepts forming collocation with reading.

Findings

In this section, the most frequently used words in RT, the nouns, adjectives, and verbs that form collocations with the concept of reading, and the usage of the collocations by years were presented. In addition, the RT corpus was divided into two five-year periods as mentioned above. By doing this, we identified the ascending and descending trends in the use of those collocations.

Table 2.
The Most Frequent Ten Words in RT Corpus

Number	Word	Frequency
1	Students	40347
2	Reading	19919
3	Teachers	13117
4	Text	10975
5	Writing	9709
6	Literacy	8264
7	Words	8156
8	Use	8076
9	Children	7878
10	Texts	7417

Table 2 shows the most frequently used content (lexical) words in the articles published in Reading Teacher in the last decade. These words show which concepts were focused intensively in the academic studies published in RT in the last ten years. Based on this, it can be said that the studies on reading in RT focused on the following concepts of a) reader [students and children] (marked with blue colour), b) reading and

writing ability (marked with gold colour), c) teacher (s) (marked with green colour) and d) reading material [text, texts, and words] (Marked with orange colour)

A vast majority of the articles stress the important role these elements in the teaching-learning activities play an important role in the improvement of reading/reading comprehension. The reason for the high frequency of these words might be due to the fact that the study area of the journal is directly related to a) twelve-year-old children, b) teaching content-reading skills for these children, and c) educators providing this education.

Thus, it is reasonable to say that research efforts in the field in the mentioned decade, considered the focus on students, their reading and writing, their teachers and the reading materials (texts and the vocabulary the students encounter in the reading materials) as important areas for reading research. One can raise the question: Why so much emphasize on these areas? We hope to discuss this question by the help of our findings about reading collocations presented in the following table:

In Table 3, the first twenty words that form a collocation with the concept of reading are listed according to their log-likelihood values. As one can see in the table (Table 3) the concept of comprehension is the one that collocates with reading most. Considering the log-likelihood value of comprehension and the frequency of its occurrence and collocation in the corpus, it can be said that the last decade's reading studies mostly focus on understanding the content of the texts.

The findings also reveal that the content focus is on sub-concepts such as reading practices/instructional routines [guided, independent, close, oral, aloud and share], intervention/support [recovery, specialist, specialists], time of reading [during, while, after], understanding and accuracy [achievement, fluency, comprehension], standards [programs], relationship [writing] and reader-based components [motivation, difficulties] are the concepts frequently collocate with the concept of reading.

We wanted to conduct a more detailed analysis of these collocations during the last decade (2012-2021) and see whether there is any difference between the first five-year (2012-2016) and the last five-year period (2017-2021). The following figure (Figure 1) presents the results:

In Figure 1, the usage frequency of the concepts collocating with reading within one million words in the last ten years is shown according to years. The results show the following: a) "reading comprehension, reading, and writing relationship and reading instruction" were frequently used within a million words ($f \geq 100$) almost every year in the last decade. b) "close

Figure 1.
Distribution of collocations by years

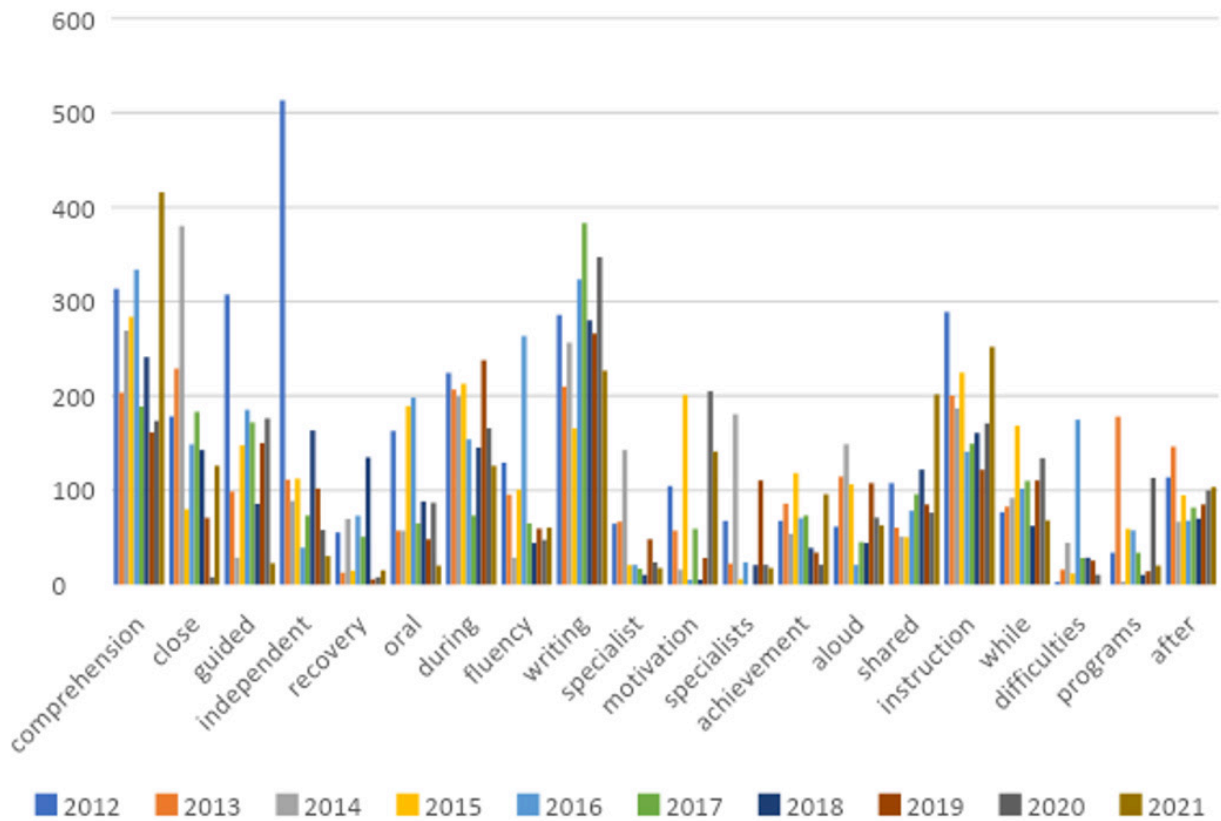


Table 3.
Reading collocations

	Word	Total no. in the whole corpus	Expected collocate frequency	Observed collocate frequency	In no. of texts	Log-likelihood value
1	comprehension	3433	115.64	923	270	2440.065
2	close	915	30.822	532	86	2392.052
3	guided	931	31.361	484	126	2025.445
4	independent	927	31.226	442	141	1748.987
5	recovery	162	5.457	158	29	1034.431
6	oral	1100	37.053	344	92	1018.649
7	during	3866	130.226	611	286	994.173
8	fluency	1053	35.47	319	98	922.58
9	writing	9709	327.046	980	378	895.342
10	specialist	207	6.973	145	49	734.989
11	motivation	1206	40.624	294	55	717.169
12	specialists	277	9.331	159	33	708.613
13	achievement	723	24.354	232	103	699.896
14	aloud	1028	34.628	270	137	699.551
15	shared	1739	58.578	337	112	672.056
16	instruction	6771	228.08	669	256	590.058
17	while	2286	77.004	356	200	569.633
18	difficulties	295	9.937	125	41	457.377
19	programs	763	25.702	182	47	435.889
20	After	2524	85.021	327	210	422.374

reading" and "independent reading" were used more frequently in the first years, but their usage frequency has decreased recently. c) The use of independent reading in 2012 ($f = 513.28$) was the highest of the most frequent collocations in the last ten years, but the frequency of use ($f = 111.31$) in 2013 dropped by about one-fifth, and this descending tendency continued gradually after 2018. d) Independent reading, reading comprehension, guided reading and reading instruction were the most frequently used collocations in 2012. e) The results show a clear tendency: f) Reading comprehension has never fallen off the agenda of RT, even with the least usage rate ($f = 161.39$) in 2019 and in the following years. g) The year of 2021 is the year in which reading comprehension was used the most frequently ($f = 415.78$). h) In addition to reading comprehension, mostly used collocations in recent years were reading-writing ($f = 226.79$), reading motivation ($f = 141.11$), shared reading ($f = 201.59$) and reading instruction ($f = 251.99$).

These findings clearly show that understanding, instruction, writing and instructional routines are among the main concepts that collocate with reading. Although they have different usage rates according to years, they constitute the main areas of reading research and practicing research-based reading instruction. We wanted to go even further and identify the kind of reading activities the researchers emphasized during the period of 2012-2021. In order to do this, we identified the most frequent reading collocations predominantly with adjectives and

similar type of descriptive words. The following table present the results:

In Table 4, the first twenty adjectives that collocate with reading are listed according to their log-likelihood values. These concepts, frequently used in RT Corpus, can be categorized and discussed with focus on the way they describe the nature of reading. The results show the following: a) Adjectives that describe the concept of reading mostly consist of instructional routines [close reading, fluent reading, independent reading, oral reading, repeated reading, shared reading, silent reading, choral reading, dialogic reading, take-home reading, wide reading]. b) The log-likelihood value of take-home reading (programs) is high, and it is likely to be used in future studies considering the observed value and the number of texts it is used. c) Some of the collocations in the table are towards improving the basic reading skills [basal reading, early reading and foundational reading]. d) Reading format/medium [online reading and traditional reading] can be considered as another category. e) The frequency of reading online is higher than traditional (paper-based) reading. Among the collocations, in spite of its observed value and being mentioned in just one text during the last ten years, the log-likelihood value of canine-assisted reading is observed to be high. Canine-assisted reading is usually found in programs for children with special educational needs. This can be a topic for another project.

Table 4.
The Most Frequent Reading Collocations with Adjectives

No.	Word	Total no. in the whole corpus	Expected collocate frequency	Observed collocate frequency	In no. of texts	Log-likelihood value
1	close	915	30.822	474	81	1979.048
2	independent	927	31.226	434	141	1696.99
3	oral	1100	37.053	331	89	952.506
4	repeated	407	13.71	106	44	272.687
5	fluent	181	6.097	67	52	223.625
6	shared	1739	58.578	198	74	215.518
7	silent	160	5.39	60	25	202.063
8	choral	47	1.583	34	23	176.035
9	online	1363	45.912	157	33	173.643
10	take-home	33	1.112	23	1	116.177
11	early	1810	60.97	158	84	112.408
12	informational	1798	60.565	157	73	111.758
13	dialogic	238	8.017	47	12	95.31
14	wide	366	12.329	57	33	91.119
15	voluntary	32	1.078	19	8	86.511
16	basal	129	4.345	33	9	83.666
17	canine-assisted	15	0.505	13	1	76.515
18	informal	220	7.411	38	23	67.693
19	traditional	701	23.613	71	36	64.965
20	foundational	225	7.579	35	24	55.875

In Figure 2, the frequency of the use of adjectives that collocate with reading in one million words in the last decade is shown by years. The displayed results clearly show the following: a) independent, close and oral are the adjectives that frequently describe the concept of reading. b) Independent reading is the most frequently used collocation with its usage rate in 2012 (f=500.99). The usage rate of this collocation shows a descending tendency after 2018 (f=160.78). Close reading, on the other hand, shows an ascending tendency in 2012, 2013 and in 2014 its collocation reached the highest usage rate (f=332.54). In the following years its usage rate decreased to its lowest level in 2019 (f=65.12). c) Although the usage rate of shared reading, early reading, traditional reading, and informal reading in research studies varies from year to year, there is an ascending tendency in their usage in recent years. d) The usage rates of fluent reading, silent reading and wide reading varies from year to year, their usage shows a descending trend in recent years. e) In the following section, we went further and tried to find the most frequent reading collocations with verbs. By doing so, we expect to identify the expected activities related to reading and/purposes of reading activities. The following table show the results.

In Table 5, the first twenty verbs collocating with reading are listed according to their log-likelihood values. In our view, the verbs that form collocations with reading can be classified under five different

groups considering their usage: a) Action verbs to achieve a goal or solve a problem about reading [implement, deliver, adjust, monitor, facilitate] b) Improvement verbs to make reading better or more effective [improve, enhance, stimulate, raise] c) Goal-oriented verbs to achieve a specific outcome or objective for reading [persist, increase, achieve, promote] d) Problem-solving verbs to address a challenge [differentiate, prevent, solve] e) Impact verbs to influence or affect reading [affect, promote, deliver and monitor].

Some of the collections may fit into more than one group, depending on their context. The above mentioned reading related activities and purposes reminds us of the importance of teaching-learning related activities that usually are incorporated or expected to be incorporated in reading. They remind us about the necessary activities and purposes when educationists are targeting improvement of the students' reading comprehension. The following figure shows the distribution of reading collocations with the above mentioned verbs by year.

As one can see in Figure 3, the frequency of the use of verbs that collocate with reading in the last decade of RT varies from year to year. The results can be summarised as follow: a) The verb improve is the most frequently used one. Although its usage was low in 2013 (f = 3.18) and 2018 (f = 2.59), its usage rate is quite high in

Figure 2.
Distribution of reading collocations with adjectives

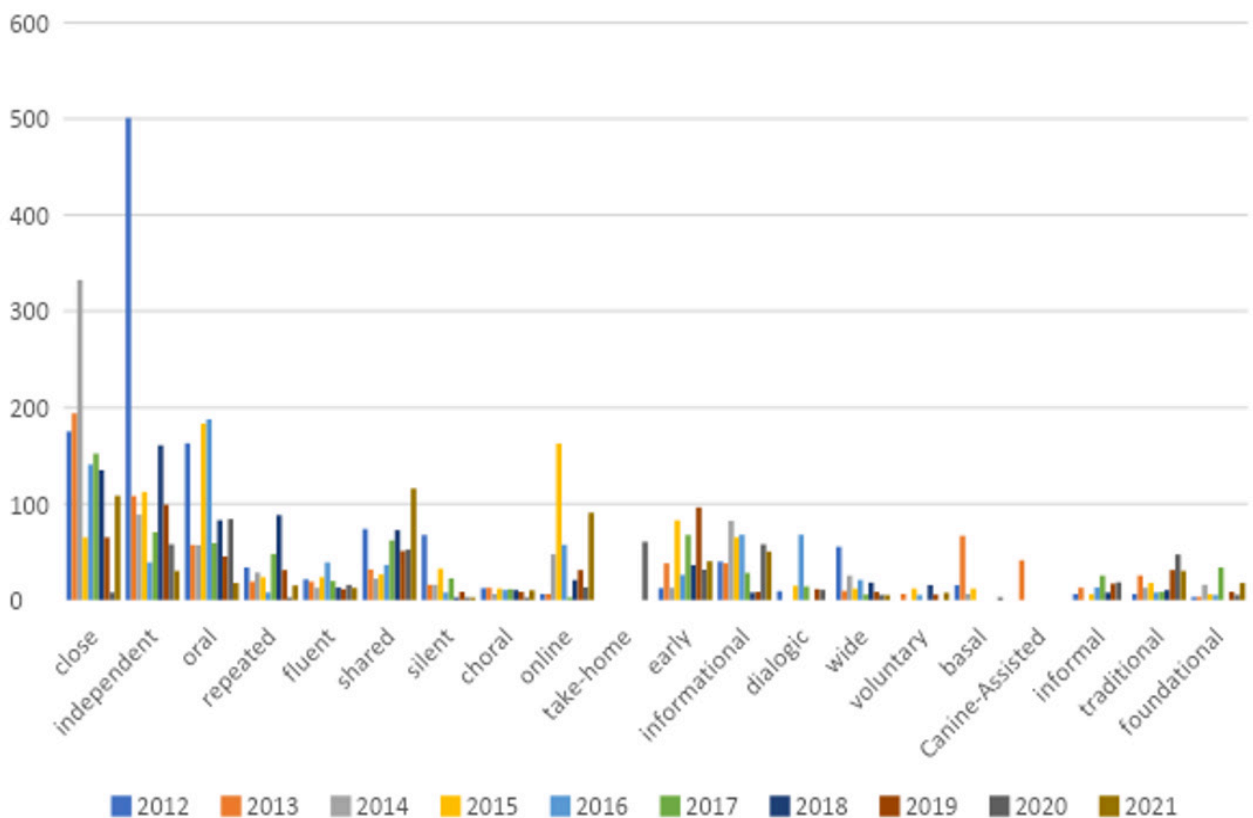
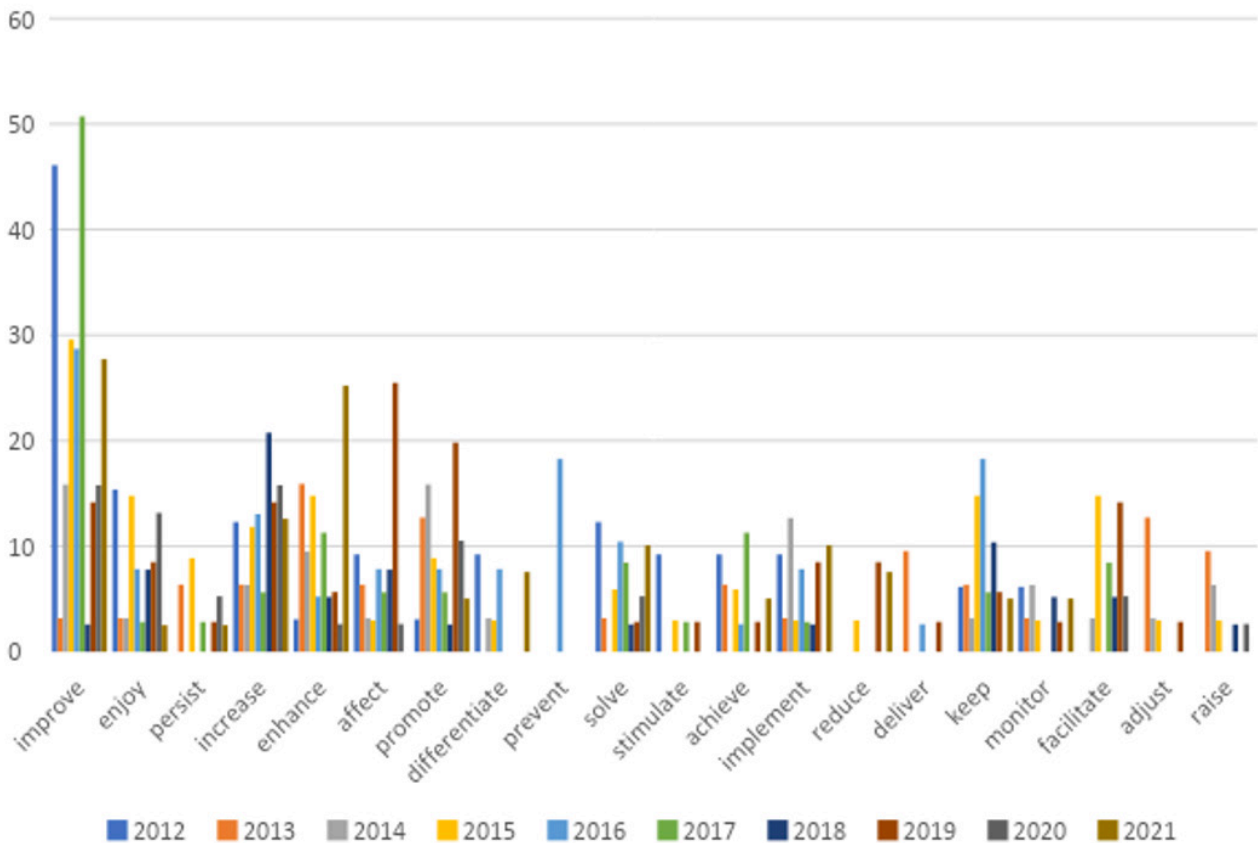


Table 5.
The Most Frequent Reading collocations with verbs

No.	Word	Total no. in the whole corpus	Expected collocate frequency	Observed collocate frequency	In no. of texts	Log-likelihood value
1	improve	554	18.661	83	60	127.157
2	enjoy	261	8.792	28	24	27.958
3	persist	49	1.651	10	9	20.898
4	increase	623	20.986	43	36	18.484
5	enhance	474	15.967	35	30	17.678
6	affect	295	9.937	25	16	16.817
7	promote	537	18.089	32	27	9.064
8	differentiate	117	3.941	11	10	8.914
9	prevent	63	2.122	7	3	7.355
10	solve	365	12.295	22	14	6.462
11	stimulate	59	1.987	6	4	5.523
12	achieve	252	8.489	15	14	4.233
13	implement	395	13.306	21	18	3.934
14	reduce	97	3.267	7	3	3.352
15	deliver	61	2.055	5	3	3.152
16	keep	573	19.301	27	21	2.836
17	monitor	208	7.006	11	10	2.016
18	facilitate	380	12.8	18	16	1.947
19	adjust	123	4.143	7	6	1.698
20	raise	147	4.952	8	7	1.645

Figure 3.
Distribution of reading collocations with verbs by year



other years. The usage rate of improve in 2012 (f = 46.1), 2015 (f = 29.57), 2016 (f = 28.69), 2017 (f = 50.71), and 2021 (f = 27.72) is higher than all other verbs. b) The usage rate of the verb improve in 2017 is the highest one among the first twenty verbs that form a collocation with reading. c) Improve reading is generally used to improve reading comprehension, reading abilities, achievement, reading fluency, reading outcomes, reading rate. Similarly, it is seen that increase and enhance are used to improve and increase students' reading level, reading comprehension, reading motivation, reading fluency, automatic, reading development skills frequently in recent years.

These findings show that the studies published in RT focused more on the development of reading-related skills in the last decade. The verb prevent - used only in 2016 (f=18.26) in the last ten years - is among the first twenty actions with the observed collocate frequency, in number of texts and log-likelihood values, and it is observed that it is used with the concepts of reading difficulties, reading problems and reading failure.

The frequency of the words, adjectives and verbs that are collocated with reading in research articles tells us not only the main focus in the studies of reading, they also gives readers an important information about what to be aware of when one work with reading

and what and how the educationists must target to improve the skills that contribute to the improvement of good readers i.e. readers who possess the necessary skills and strategies necessary to comprehend a written text at an age appropriate level. We mean that the keywords in the scientific research articles have a similar function. In the following section, we present the results of our corpus study in which we looked at the frequency of the keywords in the first five years (2012-2016) compared to the last five years (2017-2021):

The data in Table 6 is based on the two sub-corpora of RT Corpus. The first sub-corpora shows the period of 2012-2016 (Freq 1) and the second one for 2017-2021 (Freq 2). Based on this, the first five years and the last five years were compared, and the frequently used concepts and their usage were presented. The results indicate the following: a) When the frequency values are compared, children, Common Core State Standards (CCSS) reading, e-books, picture, child, e-book and read were used more in the first five years compared to the last five. b) In the last five years, the concepts of literacy, multilingual, translanguaging, linguistic, coaching, bilingual, preservice, languages, Spanish, practices and running were used more than the first five years.

Table 6.

Keywords first five years (2012-2016, Freq 1) compared to last five years (2017-2021, Freq 2)

No	Word	Freq 1	Freq 1 (per mill)	Freq 2	Freq 2 (per mill)	+/-	Log-Likelihood
1	children	5287	3152.42	2591	1384.91	+	1262.58
2	CCSS (*)	655	390.55	28	14.97	+	783.84
3	literacy	3018	1799.51	5246	2804.03	-	390.17
4	multilingual	56	33.39	520	277.94	-	382.14
5	reading	10723	6393.68	9196	4915.33	+	345.56
6	translanguaging	23	13.71	350	187.08	-	309.77
7	e-books	247	147.28	15	8.02	+	274.44
8	standards	1222	728.63	628	335.67	+	264.75
9	linguistic	159	94.81	603	322.31	-	229.58
10	coaching	149	88.84	576	307.88	-	224.05
11	bilingual	143	85.26	556	297.19	-	217.65
12	preservice	54	32.2	356	190.28	-	217.12
13	languages	270	160.99	757	404.62	-	190.35
14	picture	1449	863.98	916	489.61	+	186.62
15	child	902	537.82	476	254.43	+	184.64
16	e-book	164	97.79	10	5.35	+	182.04
17	Spanish	247	147.28	698	373.09	-	177.82
18	practices	962	573.6	1796	959.98	-	173.38
19	read	4029	2402.32	3317	1772.96	+	169.25
20	running	92	54.86	388	207.39	-	165.43

(*) CCSS: Common Core State Standards in the USA.

One of the two important findings in this table is that a) the frequency rates or usage situations of the concepts e-book and e-books decreased by 1/6 in the last five years. It is noteworthy that although technological possibilities develop day by day and offer different applications and systems related to reading, they occupy less space in studies on reading. b) Linguistic diversity related concepts such as multilingual, translanguaging, bilingual and languages became more prominent in the last five years.

Discussion and Conclusion

In this study, we investigated concepts that collocate frequently with the concept of "reading" in RT journal in the last ten years, the distribution of these collocations by years, which concepts have come to the fore in RT recently, and which concepts have decreased in their usage rate. The corpus-based findings in the research show that "comprehension" is one of the most important components of reading. Besides being one of the most frequently used concepts on its own in RT Corpus, comprehension is the most likely concept to be seen collocating with reading. In the corpus, it was also observed with different components such as techniques, skills, strategies, activities, scores, attitudes and abilities.

Concepts such as close, independent, fluency, which often collocate with reading, are comprehension-oriented concepts. It is reasonable to conclude that research on reading during the last decade stress the importance of reading comprehension by identifying the following:

- a. the factors, the skills and the reading strategies that are necessary for reading comprehension, and
- b. the instructional methods and strategies that help the students to improve their skills for reading comprehension.

Although there is a limitation in this study due to the fact that it is based only on corpus data from 2012 thru 2021, our research is based on peer-reviewed research 952 articles published in a journal, the Reading Teacher, which is one of the world's well-known journals with a special focus on reading.

The findings reveal that the main goal of reading studies is to highlight the elements of reading comprehension and the methods, techniques, skills, strategies, activities and attitudes necessary to achieve the ability of reading comprehension. Our findings are consistent with the earlier studies which were done through content analysis (Jerrolds, 1992; Stahl & Fisher, 1992; Pearson, 1992; Dillon, et al., 1992 and Mohr, et al., 2017).

From the past to present, reading comprehension has been one of the main subjects of academic studies and it has maintained its importance almost in most of the reading-focused publications. Our study also shows that reading and reading comprehension are multidimensional and complex processes and there are different components that need to be investigated further. However, in the aforementioned studies, RT was examined by content analysis and generally through keywords. The main difference of the current study is to make direct word frequencies and collocation analyses on the words used in the article content. While content analysis makes it easier to look at studies in the field of reading from a wider perspective and to understand reading based on it, this corpus-based study has given the chance to present more detailed results.

Considering the usage rates in RT Corpus in the last ten years, two more concepts are also worth mentioning. One of them is writing and the other is instruction. These concepts frequently collocated with reading in RT in the last decade, and their usage rates were quite high compared to other concepts almost every year. For example, independent reading is a quite frequent concept, but it has either a very high (2012) or a very low (2021) usage rate according to the years of use. However, writing and instruction are intensely used concepts every year in the last decade. This finding is very important to argue that reading as an important and lifelong-needed skill cannot be considered independently of writing skill. In addition, when the verbs and adjectives are forming collocations with reading, our study shows that instructional routines and actions that support and improve reading are always necessary. Furthermore, we can say that a tendency towards frequently used concepts related to reading sends the educators an important message: The students' and the teachers' learning and development are interrelated.

Another remarkable finding is that the concept of reading difficulties was frequently examined only in 2016 ($f= 174.76$) and used quite few in other years, compared the use of elements to improve reading process and reading comprehension, such as "comprehension, fluency, recovery, while and after reading". Reading problems was the eighth most frequent article topic in the study conducted by Dillon, et al., (1992), and the twenty-first in Mohr, et al., (2017). It seems that researchers, educators and editors of the journal preferred to focus on comprehension rather than focusing directly on "difficulties or problems" during the last decade.

Finally, we want to underline the influences of the national contexts and the debates on the researchers' agendas. There is a likelihood that several national

events and expert-panel publications in the USA have had some impact on the research topics that the researchers and journal editors have given priority in the last decade.

With these reflections in mind, we hope the following conclusions from our study presents an important contribution to the field of reading:

1. The ten most frequently used concepts in RT journal consisted of reader, teacher, reading material and reading-writing related concepts. Reading, the main subject of this study, was the second most frequently used concept.

2. Regardless of the part of speech, it was seen that the most frequently used concepts collocating with reading are the collocations for reading practices or instructional routines. Among these collocations, the most frequently used ones in the last ten years are independent reading and reading comprehension. Reading comprehension, reading-writing and reading instruction are the two most common collocations in the publications from 2012 to 2021.

3. When the collocations with reading formed by adjectives are examined, it is seen that the concepts that often describe reading are instructional routines, basic reading skills, and reading medium. It is also observed that the most frequently used concepts in the last ten years among the adjectives collocating with reading are close, independent, oral reading. Independent reading was the most frequently used collocation last year, but its usage rate had decreased after 2018. Close reading, shared reading, online reading, early reading and informational reading collocations, had different usage rates till 2021, but their usage have increased since then.

4. The verbs forming collocation with reading consist of action, improvement, effective, goal-oriented, problem solving, and impact verbs for reading skills. In the last ten years, the strongest verb collocating with reading is "improve". Although the usage situations have changed over the years, the verbs whose usage rate increased in 2021 compared to previous years are improve, enhance, solve, implement.

5. In the RT corpus, children, Common Core State Standards (CCSS) reading, e-books, picture, child, e-book and read were used frequently between 2012 and 2016 but less in 2017-2021. Concepts with higher usage rates between 2017-2021 compared to 2012-2016 were literacy, multilingual, translanguaging, linguistic, coaching, bilingual, preservice, languages, Spanish, practices, and running. This tendency can be related to national reading-related debates, technological developments, and the increased awareness of linguistic diversity in the American schools.

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