

e-ISSN 3060-5059

DOI: 10.67227



IJTIMOIIY-GUMANITAR SOHADA ILMIY-INNOVATSION TADQIQOTLAR

ILMIY METODIK JURNAL

Scientific and Innovative Research in
Social and Humanitarian Studies

Vol. 3 • Issue 10

2026



Founded in 2024



publishscience.uz



publish_science_journal@mail.ru



PEER REVIEWED • OPEN ACCESS

INGLIZ VA O'ZBEK ILMIY-PUBLITSISTIK MATNLARIDA KOLLOKATSIYALARNING SHAKLLANISH BOSQICHLARI

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Annotatsiya.

Maqolada ingliz va o'zbek ilmiy-publitsistik matnlarida kollokatsiyalarning shakllanish jarayoni bosqichma-bosqich tahlil qilinadi. Google Books Ngram Viewer ma'lumotlari asosida climate change, global warming, carbon footprint, artificial intelligence va machine learning birikmalarining 1960–2022-yillardagi nisbiy chastotasi o'rganildi, o'zbek tilidagi muqobillari esa me'yoriy-huquqiy hujjatlar va ommaviy axborot vositalari matnlari asosida ko'rib chiqildi. Natijada kollokatsiya shakllanishining besh bosqichli modeli taklif etildi: paydo bo'lish, tarqalish, barqarorlashuv, institutsionallashuv va hosila hosil qilish faolligi. Ingliz tilida mazkur bosqichlar chastotaning o'sishi bilan, o'zbek tilida esa kalkalash, grafik belgilash va huquqiy hujjatlarda mustahkamlanish orqali namoyon bo'lishi aniqlandi.

Kalit so'zlar: kollokatsiya, ilmiy-publitsistik matn, konvensionallashuv, kalka, diaxron chastota, terminlashuv, ingliz tili, o'zbek tili.

ЭТАПЫ ФОРМИРОВАНИЯ КОЛЛОКАЦИЙ В АНГЛИЙСКИХ И УЗБЕКСКИХ НАУЧНО-ПУБЛИЦИСТИЧЕСКИХ ТЕКСТАХ

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Аннотация.

В статье поэтапно анализируется процесс формирования коллокаций в английских и узбекских научно-публицистических текстах. На основе данных Google Books Ngram Viewer исследована относительная частотность словосочетаний climate change, global warming, carbon footprint, artificial intelligence и machine learning за период 1960–2022 годов, а их узбекские эквиваленты рассмотрены на материале нормативно-правовых документов и текстов средств массовой информации. В результате предложена пятиэтапная модель формирования коллокаций, включающая возникновение, распространение, стабилизацию, институционализацию и активизацию образования производных единиц. Установлено, что в английском языке данные этапы проявляются через рост частотности употребления, тогда как в узбекском языке — посредством калькирования, графического оформления и закрепления в правовых документах.

Ключевые слова: коллокация, научно-публицистический текст, конвенционализация, калька, диахроническая частотность, терминологизация, английский язык, узбекский язык.

STAGES OF COLLOCATION FORMATION IN ENGLISH AND UZBEK SCIENTIFIC-PUBLICISTIC TEXTS

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Abstract.

This article provides a stage-by-stage analysis of the process of collocation formation in English and Uzbek scientific-publicistic texts. Based on data from Google Books Ngram Viewer, the relative frequencies of the expressions climate change, global warming, carbon footprint, artificial intelligence, and machine learning were examined over the period 1960–2022, while their Uzbek equivalents were analyzed using regulatory legal documents and mass media texts. As a result, a five-stage model of collocation formation is proposed, comprising emergence, dissemination, stabilization, institutionalization, and increased derivative formation activity. The findings indicate that these stages are reflected in English through increasing frequencies of usage, whereas in Uzbek they are manifested through calquing, graphic representation, and consolidation in legal documents.

Keywords: collocation, scientific-publicistic text, conventionalization, calque, diachronic frequency, terminologization, English language, Uzbek language.

Introduction. Any reader of a newspaper science column will recognise phrases that seem to have always been there: *climate change*, *greenhouse gases*, *artificial intelligence*. Yet each of them has a biography. At some point, two words were put together by a scientist or a journalist, the combination was repeated, lost its alternatives, entered official documents, and finally started to generate new phrases of its own. Tracing this path is not only a matter of historical curiosity. It shows how the lexicon of a language absorbs new knowledge, and it explains why translators and language learners so often stumble over combinations whose parts they know perfectly well.

The idea that meaning is partly carried by habitual co-occurrence goes back to J. R. Firth, whose remark that a word is known “by the company it keeps” became the starting point of British contextualism [1, p. 11]. J. Sinclair later formulated the “idiom principle”, according to which speakers rely on a large stock of semi-preconstructed phrases rather than assemble every utterance word by word [2, p. 110]. Phraseological approaches, represented by A. P. Cowie and I. Mel’čuk, described collocations as restricted combinations in which one element (the base) keeps its meaning and selects the other (the collocate) [3; 4]. Lexicographic work in the tradition of the BBI dictionary made these restrictions available to learners [5].

Scientific and academic writing has attracted special attention. C. Gledhill showed that collocations in research articles are tied to the rhetorical functions of the genre [6]; D. Biber, S. Conrad, V. Cortes, and K. Hyland described recurrent lexical bundles and their disciplinary variation [7; 8]; K. Ackermann and Y.-H. Chen compiled the Academic Collocation List of 2,468 items [9]. The psycholinguistic side of the question is covered by the theory of lexical priming [10] and by usage-based accounts, in which repetition is the main force that turns free sequences into stored units [11; 12].

In Uzbek linguistics, collocations have been studied mostly in comparison with English and in connection with lexicography and translation. Kh. Khamdamov analysed partial equivalence between Uzbek and English collocations and proposed a bilingual lexicographic model [13]; Z. Ibotova discussed corpus methods for describing word combinations in both languages [14]. The phraseological fund of Uzbek is recorded in the explanatory phraseological dictionary by Sh. Rahmatullayev [15] and in the five-volume explanatory dictionary of the Uzbek language [16]. What remains insufficiently described is the process itself: the stages a combination passes through before it becomes a collocation of scientific-publicistic discourse, and the way these stages differ in a donor language and in a recipient language.

The scientific-publicistic style is a convenient field for such an inquiry. It stands between the research article and the news report, borrows terms from science, and passes them on to the general reader. New collocations therefore appear in it early and change quickly. The aim of the present article is to identify the stages of collocation formation in English and Uzbek scientific-publicistic texts and to describe the markers by which each stage can be recognised in the two languages.

MATERIALS AND METHODS

The English material consists of five two-word collocations that belong to the core vocabulary of popular writing about the environment and digital technology: *climate change*, *global warming*, *carbon footprint*, *artificial intelligence*, and *machine learning*. Their relative frequencies were extracted from the English corpus of Google Books Ngram Viewer for 1960–2022 without smoothing [17]. The Ngram database covers several million digitised books [18; 19]; the value returned for a bigram is its share among all bigrams of a given year. For readability, the values are converted here into occurrences per million bigrams (ipm).

The Uzbek material comprises the equivalents of the same or closely related collocations recorded in two types of sources: normative legal acts published in the national database of legislation (Resolutions PQ-4477 of 4 October 2019, PQ-4996 of 17 February 2021, and PQ-358 of 14 October 2024) [20; 21; 22] and scientific-publicistic texts of the national media from 2018–2025 [23; 24; 25]. The contexts were examined manually.

Five criteria were applied to each combination: (1) frequency and its dynamics; (2) formal stability, i.e. absence of competing variants in number, word order, or spelling; (3) graphic marking (quotation marks, capital letters) as a signal of perceived novelty; (4) codification in normative or reference sources; (5) derivational productivity, i.e. the ability of the collocation to serve as the base of longer combinations. The study combines diachronic frequency analysis, comparative-typological analysis, contextual and component analysis, and translation analysis of calques. Frequency thresholds of 0.1 and 1 ipm were used as working boundaries between the first three stages; they are not absolute values but reference points that make different collocations comparable.

RESULTS. 3.1. Frequency trajectories of English collocations

The data in Table 1 show that none of the five collocations entered the language in a finished form. All of them went through a long period of marginal use, then a phase of rapid growth, and, in several cases, a period of competition or decline.

Table 1. Relative frequency of English collocations in Google Books, ipm (compiled from [17])

Collocation	1970	1980	1990	2000	2010	2022	Growth 1980–2022
<i>climate change</i>	0,055	0,24	2,30	3,32	13,64	20,42	×84
<i>global warming</i>	0,030	0,061	1,95	1,81	4,05	3,10	×51
<i>carbon footprint</i>	0,000	0,000	0,000	0,001	0,53	0,86	— (emerged after 2005)
<i>artificial intelligence</i>	0,11	0,34	1,79	0,75	0,76	6,40	×19
<i>machine learning</i>	0,011	0,011	0,19	0,20	0,71	12,32	×1154

Climate change illustrates the complete trajectory. Until the mid-1970s, its frequency stayed below 0.1 ipm; the threshold was crossed in 1976, and the value of 1 ipm was reached in 1989, the year after the Intergovernmental Panel on Climate Change was established. By 2005, the collocation exceeded 5 ipm, and by 2022, it reached 20.4 ipm, 84 times its 1980 level. Global warming rose almost simultaneously (0.1 ipm in 1985, 1 ipm in 1989), peaked at 4.31 ipm in 2009, and then fell to 2.49 ipm in 2017, a drop of about 42%. Over the same period, the ratio *climate change* : *global warming* grew from 1.18 in 1990 to 3.37 in 2010 and 6.59 in 2022. The two collocations thus competed for the same referential space, and the more neutral and inclusive one prevailed.

Carbon footprint represents a compressed trajectory. The combination was practically absent before 2005 (0.014 ipm), but within three years, its frequency increased almost 28 times (0.403 ipm in 2008). It has not yet crossed the 1 ipm mark (0.86 ipm in 2022), which places it at the boundary between diffusion and stabilisation.

The pair *artificial intelligence* and *machine learning* shows that the path is not always linear. Artificial intelligence reached 1 ipm as early as 1984 and 2.01 ipm in 1986, then declined to 0.72 ipm in 2007, reflecting the long cooling of interest that followed the “AI winter” of the late 1980s and 1990s, and grew again to 6.40 ipm in 2022. Machine learning, which crossed 0.1 ipm only in 1988, grew almost ninefold between 2015 and 2022 (from 1.38 to 12.32 ipm) and has overtaken its hypernym. Figure 1 visualises these trajectories.

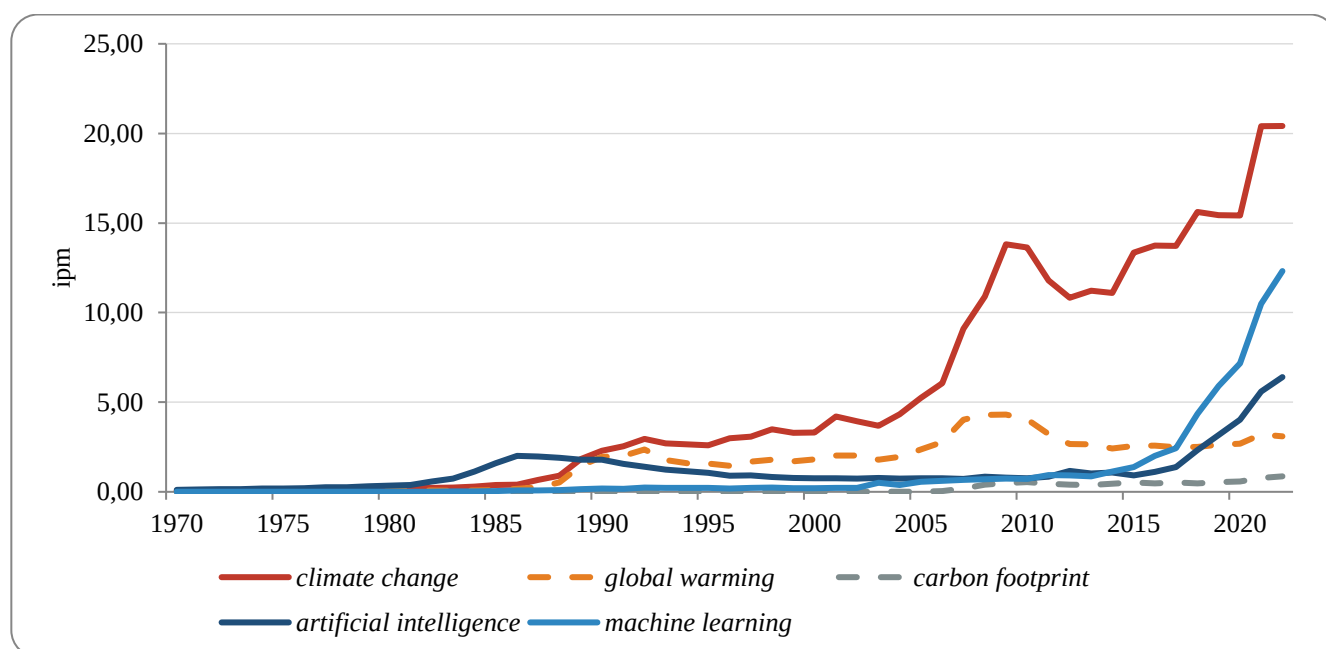


Figure 1. Frequency of five English collocations in Google Books, 1970–2022, ipm (compiled from [17])

3.2. Uzbek equivalents: calque, marking, codification

The Uzbek equivalents did not pass through a long stage of spontaneous emergence. They entered the language as ready-made calques, most often through Russian mediation: *climate change* → *изменение климата* → *iqlim o'zgarishi*; *greenhouse gases* → *парниковые газы* → *issiqxona gazlari*; *artificial intelligence* → *искусственный интеллект* → *sun'iy intellekt*. The first stage is therefore replaced by a stage of translation nomination, and the subsequent stages are shaped by factors other than frequency alone (Table 2).

Table 2. Uzbek equivalents of scientific-publicistic collocations and their stage markers

English prototype	Russian intermediary	Uzbek collocation	Attested source (year)	Marker / stage
<i>climate change</i>	<i>изменение климата</i>	<i>iqlim o'zgarishi</i>	Kun.uz (2018)	singular/plural variation; stabilization
<i>greenhouse effect</i>	<i>парниковый эффект</i>	<i>issiqxona effekti</i>	Kun.uz (2021)	quotation marks; diffusion
<i>green economy</i>	<i>«зелёная» экономика</i>	<i>“yashil” iqtisodiyot</i>	PQ-4477 (2019)	codified, but graphically marked; institutionalization
<i>artificial intelligence technologies</i>	<i>технологии искусственного интеллекта</i>	<i>sun'iy intellekt texnologiyalari</i>	PQ-4996 (2021), PQ-358 (2024)	codified in titles of legal acts; institutionalization
<i>greenhouse gas emissions</i>	<i>выбросы парниковых газов</i>	<i>issiqxona gazlari tashlamalari</i>	Gov.uz (2025)	extended unit; derivational productivity
<i>machine learning</i>	<i>машинное обучение</i>	<i>mashinali o'qitish / mashinani o'rganish</i>	academic and online texts	competing variants; diffusion

Three observations follow from the Uzbek material. First, formal variability persists even after a collocation has become common. In a 2018 article on the Paris Agreement, the singular *iqlim o'zgarishi* is used alongside the plural form in the name of the UN convention (*iqlim o'zgarishlari bo'yicha doiraviy konvensiya*) [23]. Second, graphic marking serves as an indicator of incomplete conventionalisation: the 2021 headline puts "*Issiqxona effekti*" in quotation marks [24], and the title of Resolution PQ-4477 of 2019 refers to the "*yashil*" *iqtisodiyot*, with the adjective in quotation marks [20]. Third, once a collocation is fixed in a legal act, it quickly becomes the basis of longer units: *sun'iy intellekt texnologiyalarini jadal joriy etish* (2021), *sun'iy intellekt texnologiyalarini rivojlantirish strategiyasi* (2024), and *issiqxona gazlari tashlamalari* (2025) [21; 22; 25]. For *machine learning*, no single equivalent has yet prevailed: *mashinali o'qitish* and *mashinani o'rganish* coexist in Uzbek academic and online texts.

3.3. A five-stage model

Comparison of the two sets of data allows the process to be described as a sequence of five stages. Their content and markers are summarised in Table 3.

Table 3. Stages of collocation formation in English and Uzbek scientific-publicistic texts

Stage	Content	Markers in English	Markers in Uzbek
I. Emergence	occasional free combination used to name a new concept	frequency < 0.1 ipm; synonymous variants (climatic change, change of climate)	replaced by calque nomination; descriptive translation
II. Diffusion	repetition in popular science and media texts	0.1–1 ipm, rapid growth (carbon footprint: ×28 in 2005–2008)	quotation marks, explanatory glosses, competing translations
III. Stabilisation	form becomes fixed, rivals decline	> 1 ipm for several years; decline of rivals (global warming after 2009)	one variant prevails; quotation marks disappear
IV. Institutionalisation	codification in documents and dictionaries	use in reports of international bodies, style guides, dictionaries	titles of legal acts (PQ-4477, PQ-4996, PQ-358)
V. Derivational productivity	collocation becomes the base of new units	climate change adaptation, machine learning model	<i>sun'iy intellekt texnologiyalari</i> ; <i>issiqxona gazlari tashlamalari</i>

DISCUSSION

The model agrees with usage-based views, in which repetition gradually turns a sequence of words into a single stored unit [11], and with the idea of lexical priming, according to which each new encounter strengthens the association between the components [10]. The English data add a quantitative dimension to this view: the transition from diffusion to stabilisation coincides with the moment when the collocation crosses roughly 1 ipm and maintains this level for several years. At this point, competing variants lose ground; the case of *global warming* shows that even a well-established collocation can be pushed back when a rival covers the same concept more precisely.

The process has much in common with grammaticalisation as described by P. Hopper and E. Traugott [26]: a free combination becomes a fixed one, its internal structure becomes less transparent, and the unit as a whole acquires new combinatory possibilities. In scientific-publicistic discourse, however, the driving force is not only frequency but also institutional authority. Reports of international organisations, legislation, and dictionaries codify the collocation and make it obligatory for later texts. Evert's association measures [27] and frequency counts describe the result of this process, but the codification itself has to be established by contextual analysis.

The Uzbek data show that a recipient language compresses the early stages and stretches the later ones. The calque arrives already fixed in its donor form, so there is little room for the free experimentation seen in English in the 1960s–1970s. At the same time, the collocation is still perceived as new: hence quotation marks, variation in number, and competing translations. These features agree with Khamdamov's observation that partial equivalence often preserves the denotative meaning while shifting grammatical and pragmatic properties [13]. In the Uzbek case, the decisive factor is the legal act: after a collocation appears in the title of a Presidential resolution, its form is stabilised, and it starts forming extended units.

The practical consequences are twofold. For translators, the stage of a collocation determines the strategy: an institutionalised unit (*sun'iy intellekt*) requires the codified equivalent, whereas a unit still at the diffusion stage (*machine learning*) allows a choice and calls for consistency within the text. For teachers of English for specific purposes, the stage model explains why learners master fully stabilised collocations more easily than those that are still changing [28]. A limitation of the study is the small number of collocations and the absence of a balanced Uzbek diachronic corpus; the Uzbek national corpus, as it grows, will allow the proposed stages to be measured in the same way as for English.

CONCLUSION

1. Collocations of scientific-publicistic texts are formed gradually. Five stages can be distinguished: emergence, diffusion, stabilisation, institutionalisation, and derivational productivity.

2. In English, the stages are reflected primarily in frequency. The threshold of about 0.1 ipm marks the move from occasional use to diffusion, and a stable level above 1 ipm marks stabilisation. *Climate change* crossed these

boundaries in 1976 and 1989, respectively; *machine learning* did so in 1988 and 2014.

3. Collocations may compete. *Global warming* lost about 42% of its frequency between 2009 and 2017, while the ratio *climate change*: *global warming* increased from 1.18 (1990) to 6.59 (2022).

4. In Uzbek, the first stage is replaced by calque nomination, usually through Russian. The later stages are marked by the disappearance of variants, the loss of quotation marks and, above all, by codification in legal acts (PQ-4477, PQ-4996, PQ-358), after which the collocation becomes the base of longer terminological combinations.

5. The stage of a collocation should be taken into account in translation, bilingual lexicography, and teaching English for specific purposes. Further research may apply the model to a larger set of collocations using the Uzbek national corpus.

REFERENCES

1. Firth J. R. A Synopsis of Linguistic Theory, 1930–1955 // Studies in Linguistic Analysis. – Oxford: Blackwell, 1957. – P. 1–32. URL: <https://languagelog.ldc.upenn.edu/myl/Firth1957.pdf>
2. Sinclair J. Corpus, Concordance, Collocation. – Oxford: Oxford University Press, 1991. – 179 p. – ISBN: 978-0-19-437144-5. URL: <https://books.google.com/books?id=Vcx5AAAAIAAJ>
3. Cowie A. P. (ed.). Phraseology: Theory, Analysis, and Applications. – Oxford: Oxford University Press, 1998. – DOI: 10.1093/oso/9780198294252.001.0001. URL: <https://doi.org/10.1093/oso/9780198294252.001.0001>
4. Mel'čuk I. Collocations and Lexical Functions // Phraseology: Theory, Analysis, and Applications / ed. by A. P. Cowie. – Oxford: Oxford University Press, 1998. – P. 23–53. – DOI: 10.1093/oso/9780198294252.003.0002. URL: <https://doi.org/10.1093/oso/9780198294252.003.0002>
5. Benson M., Benson E., Ilson R. The BBI Combinatory Dictionary of English: A Guide to Word Combinations. – Amsterdam; Philadelphia: John Benjamins Publishing Company, 1986. URL: <https://benjamins.com/catalog/z.bbi1>
6. Gledhill C. Collocations in Science Writing. – Tübingen: Gunter Narr Verlag, 2000. URL: <https://books.google.com/books?q=Gledhill+Collocations+in+Science+Writing+2000>
7. Biber D., Conrad S., Cortes V. If You Look at...: Lexical Bundles in University Teaching and Textbooks // Applied Linguistics. – 2004. – Vol. 25, № 3. – P. 371–405. – DOI: 10.1093/applin/25.3.371. URL: <https://doi.org/10.1093/applin/25.3.371>
8. Hyland K. As Can Be Seen: Lexical Bundles and Disciplinary Variation // English for Specific Purposes. – 2008. – Vol. 27, № 1. – P. 4–21. – DOI: 10.1016/j.esp.2007.06.001. URL: <https://doi.org/10.1016/j.esp.2007.06.001>
9. Ackermann K., Chen Y.-H. Developing the Academic Collocation List (ACL): A Corpus-Driven and Expert-Judged Approach // Journal of English for Academic Purposes. – 2013. – Vol. 12, № 4. – P. 235–247. – DOI: 10.1016/j.jeap.2013.08.002. URL: <https://doi.org/10.1016/j.jeap.2013.08.002>
10. Hoey M. Lexical Priming: A New Theory of Words and Language. – London; New York: Routledge, 2005. URL: <https://www.routledge.com/search?kw=Lexical%20Priming%20Michael%20Hoey>
11. Bybee J. From Usage to Grammar: The Mind's Response to Repetition // Language. – 2006. – Vol. 82, № 4. – P. 711–733. – DOI: 10.1353/lan.2006.0186. URL: <https://doi.org/10.1353/lan.2006.0186>
12. Wray A. Formulaic Language and the Lexicon. – Cambridge: Cambridge University Press, 2002. – DOI: 10.1017/CBO9780511519772. URL: <https://doi.org/10.1017/CBO9780511519772>
13. Khamdamov Kh. Structural-Semantic Asymmetry of Partial Equivalence and Its Lexicographic System in Uzbek and English Collocations // Xorijiy lingvistika va lingvodidaktika. – 2023. – Vol. 1, № 6. – P. 72–81. – DOI: 10.47689/2181-3701-vol1-iss6-pp72-81. URL: <https://doi.org/10.47689/2181-3701-vol1-iss6-pp72-81>
14. Ibotova Z. The Study of Corpus Linguistics in the English and Uzbek Languages // Xorijiy lingvistika va lingvodidaktika. – 2024. – Vol. 2, Special Issue 4. – P. 329–333. – DOI: 10.47689/2181-3701-vol2-iss4/S-pp329-333. URL: <https://doi.org/10.47689/2181-3701-vol2-iss4/S-pp329-333>
15. Rahmatullayev Sh. O'zbek tilining izohli frazeologik lug'ati. – Toshkent: Qomuslar bosh tahririyati, 1992. URL: aniqlanmadi.
16. O'zbek tilining izohli lug'ati: 5 jildlik / A. Madvaliyev tahriri ostida. – Toshkent: O'zbekiston milliy ensiklopediyasi Davlat ilmiy nashriyoti, 2006–2008. URL: <https://izoh.uz/>
17. Google Books Ngram Viewer. English Corpus, 1960–2022. – Google Books. URL: <https://books.google.com/ngrams>
18. Michel J.-B., Shen Y. K., Aiden A. P. et al. Quantitative Analysis of Culture Using Millions of Digitized Books // Science. – 2011. – Vol. 331, № 6014. – P. 176–182. – DOI: 10.1126/science.1199644. URL: <https://doi.org/10.1126/science.1199644>
19. Lin Y., Michel J.-B., Aiden E. L. et al. Syntactic Annotations for the Google Books Ngram Corpus // Proceedings of the ACL 2012 System Demonstrations. – Jeju: Association for Computational Linguistics, 2012. – P. 169–174. URL: <https://aclanthology.org/P12-3029/>
20. O'zbekiston Respublikasi Prezidentining 2019-yil 4-oktabrdagi PQ-4477-son «2019–2030-yillar davrida O'zbekiston Respublikasining “yashil” iqtisodiyotga o'tish strategiyasini tasdiqlash to'g'risida»gi Qarori. URL: <https://lex.uz/docs/4539502>
21. O'zbekiston Respublikasi Prezidentining 2021-yil 17-fevraldagi PQ-4996-son «Sun'iy intellekt texnologiyalarini jadal joriy etish uchun shart-sharoitlar yaratish chora-tadbirlari to'g'risida»gi Qarori. URL: <https://lex.uz/docs/5297046>
22. O'zbekiston Respublikasi Prezidentining 2024-yil 14-oktabrdagi PQ-358-son «2030-yilgacha sun'iy intellekt texnologiyalarini rivojlantirish strategiyasini tasdiqlash to'g'risida»gi Qarori. URL: <https://lex.uz/docs/7159258>
23. «Parij bitimi» O'zbekistonga nima beradi? // Kun.uz. – 2018. – 2-oktabr. URL: <https://kun.uz/news/2018/10/02/pariz-bitimi-uzbekistonga-nima-beradi>

24. Toshniyozova G. «Issiqxona effekti». Bu qanday hodisa va nimasi bilan xatarli? // Kun.uz. – 2021. – 21-iyul. URL: <https://kun.uz/uz/news/2021/07/21/issiqxona-effekti-bu-qanday-hodisa-va-nimasi-bilan-xatarli>
25. O'zbekiston 2035-yilga qadar issiqxona gazlari tashlamalarini 50 foizgacha kamaytiradi // O'zbekiston Respublikasi Hukumat portal. – 2025. – 18-noyabr. URL: <https://gov.uz/oz/eco/news/view/102865>
26. Hopper P. J., Traugott E. C. Grammaticalization. – 2nd ed. – Cambridge: Cambridge University Press, 2003. – DOI: 10.1017/CBO9781139165525. URL: <https://doi.org/10.1017/CBO9781139165525>
27. Evert S. The Statistics of Word Cooccurrences: Word Pairs and Collocations: PhD Dissertation. – Stuttgart: University of Stuttgart, 2005. URL: <https://www.collocations.de/phd.html>