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Roadmap for Creating a Bilingual Uzbek-German Electronic Dictionary of Forestry Terms

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ABSTRACT

This article deals with an important problem facing Uzbek lexicography, that is, the translation of forestry terms and lexicons into a bilingual Uzbek-German electronic dictionary. Naturally, the opinions of scientists regarding electronic dictionaries are presented, and the disparities between printed and electronic dictionaries are clarified. In addition, forestry terms are collected, summarized, and organized in a system, thus showing how electronic dictionaries can serve users better than their printed counterparts. Also, the article provides an overview of the four-step process of creating a dictionary designed to meet the demand for electronic dictionaries for forestry professionals. It explores the issues of developing bilingual electronic dictionaries. it is recommended that dictionaries be completely electronic in the future.

Keywords: electronic dictionaries, lexicography, paper dictionaries, roadmap, translators.

INTRODUCTION

In the realm of the digital sphere, there is an increasing emphasis on lexicographic research and the dissemination of information across various domains. As the world becomes progressively more digitalized and interconnected, the necessity for comprehensive and easily accessible electronic dictionaries becomes more

crucial than ever. The need for printed dictionaries is becoming less and less, and the advantages of using electronic dictionaries have already been proven. Therefore, creating an electronic dictionary of terms in the field of forestry is one of our important tasks.

It is known that ϕ specific portion of forestry terms was published in the year 1986 in the “Nemetsko-russky selskokhozyaystvennyy slovar” by I.I. Senyagina, V.N. Vukharkina, G.K. Vasleva, and V.K. Pozharskogo. In addition, the “Nemetsko-russkiy slovar po lesnomu hozyaystvu, lesnoy i derevoobrabatyvayushchey promyshlennosti” by E.A. Pavlov and O.I. Semenova in 1978, as well as the compiled words and terms in N. Pashin's “Deutsch-russisches Forstwörterbuch” dictionaries in 1959, contribute to this body of work. Despite the considerable time that has passed since the publication of these dictionaries, they adhere to lexicographic principles and are organized in alphabetical order. The printed dictionary “Nemetsko-russkiy selskokhozyaystvennyy slovar” encompasses approximately 110,000 words and encompasses forestry terms alongside vocabulary from other domains. On the other hand, the “Deutsch-Russisches Forstwörterbuch” dictionary exclusively focuses on the forestry lexicon, yet the precise number of words is not provided at the beginning of the dictionary. It is important to note that no dictionary in the realm of foreign lexicography has comprehensively covered the entirety of the German language's vocabulary, thus making it challenging to provide an exact quantification of the proportion of foreign lexemes within the German language's lexicon. For example, the dictionary "Nemetsko-russkiy slovar po lesnomu hozyaystvu, lesnoy i derevoobrabatyvayushchey promyshlennosti" published by E.A. Pavlov and O.I. Semenova 50 years ago, in 1978, consists of 30,000 words, with a clear share of international terms, are not quoted. From this, it can be understood that as the language develops as a social phenomenon, new words and even foreign lexicons continue to enter it. As we mentioned above, such development ensures that not only the German language, but also other languages enrich the vocabulary layer, and the number of international terms in the language continues to increase.

LITERATURE REVIEW

If we delve into the historical context of electronic dictionaries, it was projected as early as the 1960s that the creation of an extensive knowledge base could be achieved by using electronic dictionaries. Subsequently, it was acknowledged that this endeavor would require the utilization of numerous resources, predominantly corpora (Ide, et al. 1994, Atli, 2022). The Leipzig Corpora Collection (LCC) project, which constructs electronic dictionaries, compiles monolingual dictionaries based on texts acquired from the Internet (Goldhahn, et al. 2012). Electronic dictionaries have demonstrated their ability to better cater to user needs

compared to their print counterparts (Lew, 2023). Electronic dictionaries possess several advantages over paper dictionaries. They provide effortless accessibility, temporal and spatial efficiency, free entry, contemporary vocabulary, an integrated sound synthesizer, a multitude of languages, multifunctionality, and connections to diverse resources and communities (Atli, 2022). Of course, relying on the opinions of the above-mentioned scientists, we emphasize that users of electronic dictionaries, first of all, will have the opportunity to use time effectively, as well as hear words and pronounce them correctly. For instance, dictionaries specifically tailored for English language learners prove highly advantageous, as they provide definitions, pronunciation guides, and other elements customized to their requirements (Nurmukhamedov, 2012). Electronic dictionaries aim to guide users in both the production and comprehension of text, providing lexicographic data for cognitive purposes (Prinsloo, 2012). The efficacy of learning from electronic dictionaries surpasses that of paper dictionaries (Petrylaitė and Vėžytė, 2013). According to another source, a study conducted on 8th graders concluded that the utilization of an electronic dictionary is more expeditious and pragmatic than employing a paper one, and that electronic dictionaries are more advantageous in terms of word identification (Kaplan, 2018). It should be noted that in order to include new words that have come into use in printed dictionaries, it is necessary to publish a revised and supplemented form of the dictionary. However, electronic dictionaries, particularly interactive dictionaries, have the potential to contribute to linguistic research by providing structured multilevel information about words (Apresjan and Mikulin, 2016). The fusion of e-dictionaries with other language learning tools, such as computer-assisted language learning websites, proves effective in enhancing vocabulary and language acquisition outcomes (Alizadeh, 2018).

The fundamental premise of constructing digital dictionaries entails harnessing web technology to ensure accessibility across all platforms (Fitrian, 2019). Based on the above points, we can see that the immediate advantages of using electronic dictionaries are superior to those of printed dictionaries. However, the existence of shortcomings related to the use of electronic dictionaries is reflected in the opinions of Ferritt and Dolinger, as well as the following scholars. In comparison to print dictionaries, they may lack the comprehensive lexicographical information and breadth of coverage (Ferrett and Dolinger, 2021). Moreover, there can be challenges related to hybridization, corpus coherence, data reliability, access path, personalization, and quality (Jing and Vivi, 2021). Additionally, the inclusion of curated and non-curated data poses another challenge, as the online environment allows users to access diverse sources of information (Bothma, 2020). Other sources emphasize the necessity for publishers to comprehend the distinctions between print and electronic publications from a design perspective (Almind, 2005, Ullah, 2019). Creating electronic dictionaries has various challenges. That is, dictionary creation involves designing and implementing a workflow and query

system that can effectively take advantage of corpus-based bilingual dictionaries (Zhao, 2019, Bothma and Gouws, 2020). So involves determining the extent of lexicographic information and ensuring that users can locate the relevant data that meets their specific needs (Tarp, 2014, Miller, Kwary, Setiawan, 2017). Therefore, in order to eliminate the difficulties and shortcomings that arise in the complex process of creating a dictionary, the coverage of the information that should be included is wide enough and their accuracy ensures that the dictionary is perfect.

The opinions of a group of scientists about the need to create electronic dictionaries with the effective use of computer programs are presented below. Firstly, a computing device receives a corpus of textual data and stores rules based on user input. These rules are then utilized to generate recommendations for the user. Secondly, the device stores words from the corpus in a dictionary, with a focus on semantic links and word combinations (Bolshakov, Gelbukh, Galicia-Haro,1999). Thirdly, the device updates the rule database and dictionary based on the user's selections from the system-generated recommendations. Lastly, the dictionaries should be accessible to text-processing software, human users, and lexicographers. The use of computer software in lexicography is indispensable for the development of automated dictionaries and the execution of tasks such as information retrieval and instantaneous translation. In the next parts of the study, the steps of creating an electronic dictionary of forestry terms will be considered.

Forestry is a multifaceted field that possesses its specialized terminology. Proficiency in and utilization of forestry terminology is imperative for effective communication and collaboration within the field (Korcz et al., 2022). In the present day, forestry and agriculture are recognized as distinct fields, necessitating lexicographers to independently establish, accumulate, organize, and standardize forestry terminology. Within the realm of Uzbek lexicography, there is a dearth of monolingual, bilingual, or multilingual dictionaries that encompass forestry terminology from a lexicographic standpoint. It should be noted that the demand for forestry terminology is constantly increasing, which can be explained by the introduction of new trees, shrubs, and other plant species to our country.

Considering the fact that the lexicographic examination of forestry terminology has not been undertaken in the Uzbek and German languages, the lexicographic resolution to this issue involves the categorization of all gathered lexicons into thematic clusters and their subsequent incorporation into an electronic dictionary. This approach has been proven efficacious in the realm of foreign lexicography. In the domain of computational linguistics for the Uzbek language, the creation of linguistic databases and search-engine systems, such as electronic dictionary-thesauruses and semantic dictionaries, assumes paramount importance. If forestry terminology is not fully reflected in electronic dictionaries, it will be difficult for forestry professionals to explain and convey the main concepts and ideas in the

field. Furthermore, the absence of standardized forestry terminology may impede the advancement and progression of the field. As each discipline progresses, the evaluation of electronic lexicographic resources for the language system becomes indispensable. As researchers occasionally assert, forestry terminology presents a formidable challenge in terms of accessibility and understanding for individuals operating within the field of forestry (Hrydzhuk, 2019, Adam et al., 2012, Wei and Cheng, 2022). We believe of the opinion that the electronic dictionary of forestry terms, which we endeavor to construct, will enhance the lexicographic system, serving as an information source for domain specialists, and constituting a valuable tool for the accurate translation of information across languages.

RESEARCH METHOD

Electronic dictionaries and Spontaneous Language Learning

Electronic dictionaries play a significant role in facilitating the development of language acquisition among users. They provide convenient accessibility to precise definitions and translations of words and phrases, enabling learners to broaden their lexicon and refine their linguistic precision. Moreover, electronic dictionaries allow learners to delve into diverse concepts and immerse themselves in various cultures through alternative modalities of learning (Hsieh, 2019). Furthermore, the utilization of electronic dictionaries has been found to support incidental vocabulary acquisition, as learners can access translations, synonyms, and auditory pronunciations (Medina, 2019).

This proactive involvement with electronic dictionaries not only facilitates comprehension of the connotation of novel lexemes but also augments language learners' metalinguistic consciousness and cultivates their proficiency in critically analyzing and producing written and oral language (Almarshedi, 2022, Zorigt and Tumurbat, 2022). In this manner, electronic dictionaries empower language learners by providing instantaneous feedback and fostering independent learning. Furthermore, the utilization of electronic dictionaries heightens the learning experience by offering supplementary attributes such as auditory pronunciation, synonyms, and contextual illustrations of usage.

They supply immediate feedback, broaden the purview of learning, and promote self-directed language acquisition. In summary, electronic dictionaries are an indispensable resource for language learners as they furnish effortless access to accurate definitions and translations, expand the lexicon, enhance linguistic precision, and stimulate impromptu language acquisition through interactive engagement and meaning construction. The utilization of electronic dictionaries during game-based sessions by bilingual ESL participants was observed to be advantageous in their endeavor to comprehend novel vocabulary (Ng and Raghbir, 2021).

These attributes not only aid learners in comprehending the significance of unfamiliar words but also allow them to explore diverse concepts and cultures. The utilization of electronic dictionaries can foster impromptu language acquisition by providing learners with instantaneous feedback on their written and oral language, expanding their vocabulary, and enabling them to engage with language in a meaningful and interactive manner.

Demand for forestry terminology

There is a demand for electronic and multilingual dictionaries in all developed countries. At this point, electronic dictionaries created in Turkic languages, including Kazakh, Tatar, and Uzbek, were revealed in a broad sense, due to the expansion of the Internet in the 21st century. It is clear from this that for the first time in Uzbekistan, in 2009, an explanatory electronic dictionary of current Uzbek language slang was compiled (Jambulova and Novruzova, 2023). Additionally, there is an active development of the Uzbek sector of the Internet, which requires reliable algorithms for text analysis, including morphological analysis of words in the Uzbek language (Mengliev, et al., 2021). Creating linguistic databases and search-engine systems, such as electronic dictionary-thesauruses and semantic dictionaries, are crucial tasks in computational linguistics for the Uzbek language. According to our research, the demand for forestry terminology is visible in Uzbek linguistics. In our research, we analyzed the hyponymic relations of forestry terms in German and Uzbek languages, paying special attention to the subjects taught in forestry faculties and the systematization of lexicography and hyponymic lines in both languages (Tilovova, 2023).

We can safely say that forestry terms occupy a significant part of the vocabulary. It can be seen that the field is very broad and includes forest biotechnology and microbiology, dendrology, forest medicinal plants, forest pests, forest phytopothology, forest reclamation, forest breeding, including such disciplines as forest soil science, landscape gardening, and residential improvement. It can also be said that its composition consists of departments such as design, landscape dendrology, floriculture, and lawn gardening, which are not yet regulated in Uzbek. In the creation of a bilingual electronic dictionary, lexicons related to cultivated forests and desert forests will also be covered. Scenic trees, bushes, and plants will add beauty to our cities and villages and will provide a wide opportunity to promote clean ecology. Because the growth, naturalness and other aspects of some plants on the territory of our country can increase the interest of tourists.

Objectives of the Bilingual Uzbek-German Forestry Dictionary

It is worth noting that the Uzbek language as a metalanguage participated in the creation of dictionaries, except for the Russian language, in very rare cases. Due

to the influence and dominance of the Russian language on the structure of dictionaries, the Uzbek language is ranked next. As a result, bilingual forms of all kinds of dictionaries were created (for example, Russian-German, and German-Russian). When translating words into Uzbek, it was forced to translate using Russian as an intermediary language. This has led to cases of direct spelling of the word or misunderstanding of its meaning, as well as limiting the opportunities of the people, most of whom are Uzbek-speaking, in the language, speech, and lexicon of fields.
The aims of creating a bilingual Uzbek-German forestry dictionary are as follows:

H_1: collecting and compiling a complete list of terms related to forestry in the Uzbek language, taking the Uzbek language as a metalanguage first;
H_2: to organize the collected terms into thematic groups for easy reference and navigation;
H_3: to ensure the accuracy and consistency of translations between Uzbek and German forestry terms;
H_4: to create an electronic dictionary that is easily accessible and user-friendly for language learners, researchers, and professionals in the field of forestry.

RESULTS

The methodology for creating the bilingual Uzbek-German forestry dictionary involves the following steps. First, it is important to conduct extensive research to gather a wide range of forestry terms in both Uzbek and German languages. This includes consulting linguistics sources that focus on associative lexicography, lexicology, and grammar, considering the naming of dendronyms in both languages, and analyzing dictionaries for semantic information. The process will also involve studying forestry dictionaries such as the “Deutsch-russisches Forstwörterbuch” to ensure that all relevant terms are collected and compiled accurately. Upon collection of the forestry terms, the next step involves organizing them into thematic groups for systematic categorization and easy reference. Thematic grouping ensures that related terms are clustered together, allowing for efficient navigation and a comprehensive understanding of the vocabulary. This enhances the usability and practicality of the dictionary for language learners, researchers, and forestry professionals. After organizing the terms into thematic groups, the next step is to establish accurate translations between Uzbek and German. This will require the expertise of professional translators fluent in both languages and knowledgeable about forestry terminology. They will ensure accurate and contextually appropriate translations, taking into account the specific nuances and technicalities of forestry terminology in both languages. Following the translation process, it is crucial to review and validate the accuracy of the translations.

This can be done through expert consultations with professionals in the field of forestry who can verify the correctness and relevance of the translated terms. Moreover, feedback from users and experts will be invaluable in identifying any errors or areas for improvement in the dictionary. Once the translations have been validated, the next step is to create a structured and user-friendly electronic dictionary. This can be achieved through the development of a user interface that allows easy search and navigation through the dictionary, as well as providing additional features such as audio pronunciation, synonyms, and example sentences for a comprehensive understanding of the terms. Additionally, incorporating a feedback mechanism within the electronic dictionary will allow users to provide suggestions, report errors, and contribute to the continuous improvement of the dictionary.

The final step is to disseminate and promote the bilingual Uzbek-German electronic dictionary of forestry terms. This can be done through various channels such as publishing it online on reputable platforms, sharing it with relevant academic institutions and organizations in the field of forestry, and actively promoting it through social media and other communication channels. By following these steps, the creation of a bilingual Uzbek-German electronic dictionary of forestry terms will be a valuable resource for language learners, researchers, and forestry professionals, providing accurate and accessible information in both languages to facilitate effective communication and knowledge exchange in the field of forestry. The diagram below outlines the steps involved in creating an electronic dictionary and can be easily understood.

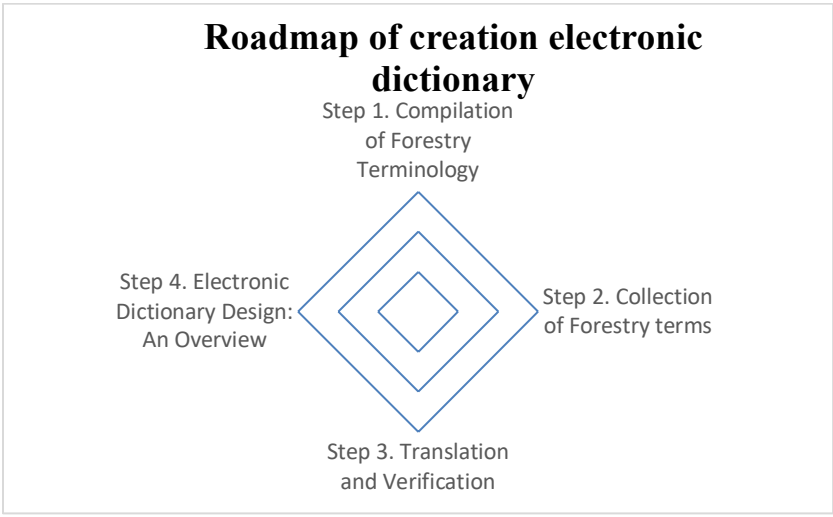

Figure 1. Roadmap of creation electronic dictionary.

Step 1. Compilation of Forestry Terminology

The first step in creating the bilingual Uzbek-German forestry dictionary is the compilation of forestry terminology. This involves gathering a comprehensive list of relevant terms and phrases in both languages that are specific to the field of forestry. To ensure accuracy and reliability, it is important to avoid directly plagiarizing existing sources. Instead, it is recommended to consult credible sources and adapt the information in a way that maintains the integrity of the content while also fitting the context of the dictionary. To compile forestry terminology for the Uzbek-German electronic dictionary, it is essential to consult reliable and credible sources. One such source that can be utilized is the "Deutsch-russisches Forstwörterbuch," which contains forestry terms in German. While the exact count of words in this dictionary is unknown, it covers an extensive range of forestry terms specific to the German language. Furthermore, the principle of organizing the electronic filing system for the dictionary is based on the register of linguistic units in a web format, as described by the methodology for its creation. As the dictionary continues to take shape, it's important to delve deeper into the methodology and principles governing its creation. This involves not only compiling a list of forestry terms but also understanding the intricacies of language and how these terms are used in specific contexts. The development of the dictionary will not only encompass linguistic units but will also aim to capture the nuances and regional variations of these terms. It is crucial to consider the cultural and contextual aspects that shape the usage of forestry terminology in both Uzbek and German.

The compilation process should include removing URLs, punctuation, and lower-casing the terms. Additionally, it is important to organize the terms logically and categorize them based on their specific subfields or themes within forestry.

Step 2. Collection of forestry terms

Thus, forestry terminology plays a crucial role in the field of forestry, but it can also face challenges in terms of availability and understanding. To bridge the gap and improve accessibility, efforts by various researchers and scientists to develop terminological resources and create a standardized framework for forest terminology will be necessary and will be divided into thematic groups as follows.

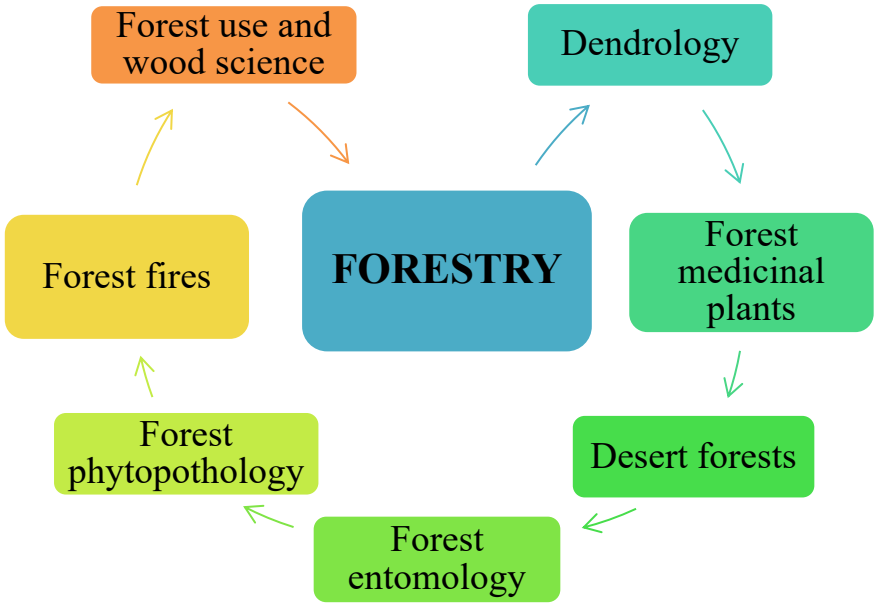

Figure 2. The thematic grouping of forest terminology.

Based on the opinion of forest experts, the field terminology was divided into 7 thematic groups (Qayimov and Berdiyev 2012). For example, the high demand for wood raw materials since ancient times may have led to the proliferation of wood-bearing plants (Duden et al., 2017). From this point of view, wood science, like other thematic groups, has its thousands of lexicons. For example, dendronyms in two languages can be used as thematic grouping.

The rest of the terms are also collected in thematic groups. As mentioned above, these terms were created not only in the form of a printed dictionary but also in the form of an electronic dictionary in the Uzbek-German languages. Further, our research will not be limited to the electronic dictionary, on the contrary, we aim to create educational literature on these thematic groups together with experts in the field of forestry.

The following issues will be resolved through the planned electronic dictionary:

1. The accumulated terms in the field of forestry are systematized:
2. The aspiration of Uzbek lexicography to take a place among world lexicologists is manifested in its practical works.

Table 1.

Dendronyms

1	Walnuts	der Nußbaum	*Juglans regia*
2	Olive tree	der Ölbaum	*Olea L.*
3	Oriental oleaster	östliche Oleaster	*Elaeagnus L.*
4	Sweet almonds	der echte Mandelbaum	*Amygdalus communis L*
5	Berberis	die Berberitze	*Berbaris L.*
6	Mulberry tree	der Maulbeerbaum	*Morus L.*
7	Eucalyptus	der Eukalyptus	*Eucalyptus L*
8	Yuyuba	der Jujubenbaum	*Zizyphus jujuba Mill*

Table 2.

Leaf-eating pests of forests and ornamental trees

1	poplar leaf eater	der Pappelblattkäfer	*Melasoma populi L.*
2	keragoch, bujun leaf eater	der Ulmenblattkäfer	*Galerucella luteola Mill.*
3	pine silkworm	der Kiefernspinner	*Dendrolimus pini L*
4	butterfly	der Goldalter	*Euproptis chrysorrhoea L*
5	pine mite	die Ulmengallmilbe	*Eriophes ulmicola Nal*
6	spruce mustache beetle	der Fichtenbock	*Tetropium fuscum F*
7	cherry fly	die Kirschfliege	*Rhagoletis carasi L.*
8	bark beetle	der Borkenkäfer	*Ipidae*

Step 3. Translation and Verification

After compiling the forestry terminology, the next step is to translate and verify the terms in both Uzbek and German. This requires the expertise of skilled translators who are fluent in both languages and have a good understanding of forestry terminology.

In addition to the "Deutsch-russisches Forstwörterbuch," other reliable sources like forestry journals, academic publications, and official documents related to forestry can provide valuable input for the compilation process. These sources can offer a comprehensive understanding of forestry terminology, including specific terms related to tree species, forest management practices, and environmental conservation efforts. Furthermore, collaboration with experts and professionals in the field of forestry can provide valuable insights and ensure the accuracy of the translations. Once the forestry terminology is compiled, it is crucial to translate and verify the terms accurately in both Uzbek and German. This translation process requires the expertise of skilled translators who have a deep understanding of the

nuances and technicalities of forestry terminology in both languages. They should ensure that the translations capture the precise meaning and context of each term, taking into account any regional variations or specific cultural references.

Step 4. Electronic Dictionary Design: An Overview

The electronic dictionary design should be user-friendly and accessible to both Uzbek and German speakers. It should have a clear and intuitive interface that allows users to easily navigate and search for forestry terms. As technology continues to advance, the future of electronic dictionary design holds great potential (Melnyk et al., 2020). New forms of electronic dictionaries are constantly being developed, incorporating advancements in technologies such as artificial intelligence and machine learning. Electronic dictionaries have become an essential tool for language learners, providing features such as word definitions, translations, and grammatical information (Chiu & Serrano, 2006). To effectively design the electronic dictionary for forestry terms, it is essential to consider the diverse linguistic and cultural aspects of both the Uzbek and German languages. The user-friendly interface of the electronic dictionary should facilitate seamless navigation and allow users to search for forestry terms with ease. Moreover, methodologies and technologies discussed in scholarly works on electronic dictionaries and lexicography can provide valuable insights into the development of a functional and comprehensive electronic dictionary. Careful attention to the principles of linguistic databases, language reception, and the retention of meaning in the context of forestry terminology will enhance the effectiveness and value of the electronic dictionary. Additionally, incorporating multimedia features such as audio pronunciation, visual representations, and contextual usage examples will enrich the user experience and aid in the comprehensive understanding of forestry terms. By integrating these features, the electronic dictionary can cater to different learning styles and enhance the overall learning experience for users. Now that you have outlined the importance of translation and verification of the forestry terms, the next crucial step is to incorporate multimedia features into the electronic dictionary. Visual representations, audio pronunciation, and contextual usage examples are essential for comprehensive understanding. To ensure user-friendliness, the interface should be intuitive for both Uzbek and German speakers, allowing for easy navigation and search for forestry terms. When designing an electronic dictionary, several key components need to be considered to ensure usability and effectiveness (Pikilnyak et al., 2021). These components include the search function, user interface design, and the incorporation of multimedia elements. The search function is a crucial component of electronic dictionary design. By integrating these multimedia elements and creating a user-friendly interface, the electronic dictionary can cater to different learning styles and enhance the overall learning experience for users.

It's also important to consider the linguistic and cultural aspects of both languages during the design process. Furthermore, the electronic dictionary should also include a comprehensive and up-to-date database of forestry terms in both Uzbek and German languages.

This database should be regularly updated to reflect changes and advancements in the field of forestry. Additionally, the electronic dictionary should include features for collaborative lexicography, allowing users to contribute their own knowledge and suggestions for improving and expanding the database of forestry terms. Overall, the creation of a bilingual Uzbek-German electronic dictionary of forestry terms requires careful consideration of linguistic principles, usability evaluation, integration of multimedia features, regular updates to the database, and opportunities for collaborative lexicography.

Such as audio pronunciation guides, images, and videos can further enhance the user experience and provide visual and auditory aids for understanding the meaning and usage of forestry terms. The development of the electronic dictionary should also include a system for regular updates and additions to ensure that it remains up-to-date with the evolving terminology in the forestry field. Once the electronic dictionary is created, it should undergo rigorous testing and quality assurance to ensure its accuracy, functionality, and usability.

It is important to ensure that the dictionary incorporates multimedia features, systematic organization of terms, regular updates, and rigorous testing to enhance its effectiveness and usability.

Furthermore, the dictionary should be regularly updated to keep up with any changes or advancements in the field of forestry. Overall, the roadmap for creating a bilingual Uzbek-German electronic dictionary of forestry terms involves:

1. Collecting and organizing forestry terminology in thematic groups based on input from domain experts.
2. Collaborating with linguists, lexicographers, forestry experts, and software developers to ensure the accuracy of translations, the organization of terms, and the usability of the electronic dictionary.
3. Incorporating multimedia elements such as videos, photos, and audio data to enhance the learning experience and facilitate comprehensive understanding of forestry terms.
4. Providing detailed information on each term, including visualizations of term relations, real-life usage examples, and comprehensive translations to cater to both language learners and professionals in the field of forestry.
5. Regularly updating the electronic dictionary to reflect any changes or advancements in the field of forestry, ensuring that users have access to the most up-to-date information. Additionally, the development of this electronic dictionary should follow a user-centered design approach, considering the specific needs and preferences of the target audience. This can be done through user research, usability testing, and gathering feedback from users to continuously improve the

dictionary's functionality and usability. By following this roadmap, the result will be a comprehensive and user-friendly bilingual Uzbek-German electronic dictionary of forestry terms that will serve as a valuable resource for language learners, professionals, and anyone interested in the field of forestry.

DISCUSSION AND CONCLUSIONS

In conclusion, Uzbek lexicographers have recognized the importance of including forestry terms in electronic dictionaries to meet the demand for accurate and reliable sources in this field. By creating an electronic dictionary of forestry terms, combining traditional lexicography with modern technology, it is possible to bridge the gap between the rich forestry terminology and the digital frontier. These efforts contribute not only to the preservation and promotion of Uzbek forestry terminology but also to the general documentation and preservation of the Uzbek language. In addition, the inclusion of forestry terms in an electronic dictionary will greatly benefit students, researchers, and professionals in the field of forestry. The use of a complete electronic dictionary facilitates scientific research and communication in the forestry community of Uzbekistan. In addition, the possibilities of using the electronic dictionary will serve a wider audience, including those interested in learning Uzbek forestry terminology from around the world. By providing a user-friendly platform to learn and understand forestry terminology, the electronic dictionary plays an important role in popularizing knowledge and deepening understanding of specific forestry terminology. Also, while creating a forestry vocabulary is valuable, it is important to address potential limitations and focus on future developments that are responsive to technological progress, user needs, and the evolving landscape of forestry practices and knowledge. is important. This ensures that the dictionary remains a valuable and up-to-date resource for users.

IMPLICATIONS

The above-discussed bilingual electronic dictionary of forestry terms is based on thematic grouping, which determines the integration of the lexical layer of forestry into one system. In addition, the creation of an electronic forest dictionary will create several useful opportunities affecting various aspects of forestry, education, research and professional practice. For example:

1. **Educational Implications:** Students and teachers will have access to a comprehensive resource to explore forestry concepts, promote a deeper understanding of terminology, and master knowledge. When there is a need to use the dendrology section, the dendrology section of the dictionary is selected. In this section, each forest plant, tree, and shrub

belongs to a certain class, family, genus, and species. For example, for more specific information, *Pinaceae, Cupressaceae, Taxaceae,* and *Taxodiaceae* are family names, *Conifers* are class names, *Taxus* is the genus name, *Taxus* (Taxus) genus, fruit or European taxus -Taxus baccata L., sharp-leaved or Far Eastern taxus (Taxus cuspidate S.et Z) refers to species names. The rest of the thematic groups are systematized in the same way. Additionally, it enriches the learning experience of forestry-related research and serves as a valuable supplement to academic teaching materials, textbooks, and course resources.

2.

2. Standardized Terminology: Establishes a set of standardized terminology that ensures consistency in communication and understanding among students, teachers, and practitioners. Assists professionals in making informed decisions by providing clear definitions and explanations of forestry terms. For example, in the works of Uzbek forest experts like Qayimov and Berdiev (2012), synonymous variants of terms were effectively used or directly copied in the expression of tree names in Uzbek.

For example, dozens of synonymous lexemes were used, such as *"ko'kterak/chinniterak", "bagaterak/osokor", "kushjiyda/ingichka bargli jiyda", "qora saksovul/shorkhok saksovul", "oq saksovul/qum saksovul", "saur archa/yarim sharshimon archa", "kazakh archa/yer bag'irlab o'sadigan archa"*. In order to avoid misunderstandings in speech and text, it is recommended to use terms such as *ko'kterak, bagaterak, kushjiyda, qora saksavul, oq saksavul, saur archa, kazakh archa*, which are already used in the language in scientific literature. Therefore, in this dictionary, as a result of the cooperation of a team of expert and linguist lexicographers, only the synonyms of the terms that exist in the science are given separately.

3. Nature conservation and environmental impact: Studies have shown that German forestry preserves biodiversity and sustainably preserves the natural beauty of forests. it is not difficult to understand that the practice is important for the whole world. The need to preserve the green world increases along with the awareness of the information about the environment and nature protection terminology directly through the dictionary. In addition, it educates the general public and stakeholders about environmental issues related to forestry, increasing understanding and appreciation of forest conservation efforts.

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