Computer Lexicon Development in Chechen Language

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Abstract: The article defends the opinion about the need to create a terminological base in the Chechen language for information and communication technologies. Some results of activities in this direction are given. The experience of creating terminological dictionaries on computer technologies in the Chechen language, various studies in this direction, the experience of introducing the Chechen language into the Linux text editor and the forthcoming work on introducing the Chechen language into the Microsoft Word text editor are described. The basic principles of creating new terms by means of the Chechen language are given. Linguistic electronic programs designed for verb conjugation, for declension of nouns and adjectives are described. The author's glossary have been compiled as part of a textbook for students of the Faculty of Information Technologies of the Chechen State University, containing the most common terms, phrases used to work with computer technology.

1 INTRODUCTION

The development of computer vocabulary in the Chechen language is the most important step towards the development of the Chechen language. Computer vocabulary in this series occupies an important place, since computer technologies have firmly entered the life of society. When native speakers begin to master a new area of reality for themselves, the language develops, since new concepts must be expressed using new words and expressions. Thus, new words appear that did not previously exist or had a different meaning. At this stage of its development, the Chechen language is undergoing the emergence in its structure of a new layer of vocabulary - computer vocabulary. And in this direction it is necessary to work actively, so as not to miss the opportunity to develop the language. In the world of computer technology, educational institutions, public institutions, commercial companies carry out their activities through computer technology. According to Badaeva A.S., Kurbanova S.A., the Chechen language entered the field of computer technology relatively recently, about 15-16 years ago (Badaeva, A.S. and Kurbanova, S.A., 2016.). However, in order for the language to develop, new terms, new concepts and terms for their designation appear, it is necessary to conduct research in the field of vocabulary, grammar and computational linguistics, followed by digitalization of the results of research work.

2 MATERIALS AND METHODS

Specialists in the Chechen language are faced with the problem of forming a new terminological base - the computer vocabulary of the Chechen language. All languages in their development, one way or another, face this problem (Tatarinov V.A., 2007.). This is a natural process of development of the lexicography of a particular language. As Umarkhadzhiev S.M. points out, at the stage of formation of computer terminology, due to the lack of a terminological base in the Chechen language, each specialist attaches his own understanding to one or another term, which leads to discrepancies, because the same term has different meanings for different authors (Umarkhadzhiev S.M., 2016). In order to

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avoid discrepancies in terms, coordinated work of specialists is necessary. Create terminological dictionaries. Reach a consensus on controversial issues.

Хуушма-хиллара, маттах цхьана керлачу декъехь пайда эцар долалучу хенахь оцу маттахь терминологин бух цахилча, цухьокъехь дечукъамелийн а, хаамийн а хатI лахарчу тIегIане хьхуьлу, цул сов, хIорамма а кхетамийн чулацам шена-шена хетачу гIирсашца гайтарна, цхьа кхетам билгалбеш тайп-тайпана дешнаш хуьлу, ткъа цхьана дешан тайп-тайпан чухьостанашкахь – масийтта маьIна. Цундела керлачу декъехь мотт баржар доладелча, терминийн бух кхуллуш болх дIабахьа беза (Badaeva A. S., 2017) (Our translation: When a language begins to explore a new field of activity, it is necessary to have a terminology base, in the absence of such, the texts created in this area have a low stylistic coloring Moreover, different names are used to designate a certain term, therefore, a certain concept in different sources receives a different interpretation from each other.Therefore, first of all, it is necessary to lay the terminological basis). Specialists in the computer vocabulary of the Chechen language need to lay the foundation of the terminological base in this direction.

In order to fill this gap, some specialists in the Chechen language and computer technology create terminological dictionaries. In this regard, we can mention the Russian-Chechen, Chechen-Russian dictionary of computer vocabulary by S.M. Umarkhadzhiev. It contains about five hundred terms with examples of the use of these terms. The given examples of the use of these terms allow you to accurately understand the meaning of the term. The examples serve as auxiliary means for concretizing the translation from the Russian language. If a word has two or more meanings, then translations are given under the numbers. Example: ***вы́вод*** *1. а̃радаккхар (д, д); 2. жамI (д, д*); ***дерзор (д, д)*** *1. разры́в; 2. заверше́ние*.. If the term has synonyms in translation, then these synonyms are given in the same row, for example: ***де̃хьадаккха*** *перемести́ть, перемеща́ть, дви́гать*.. As you know, Chechen words do not have genders, but have class indicators, denoted by the letters *в, й, б, д*. In dictionaries, the class indicator is given after the word in brackets (***аудиофа́йл*** *о̃зан файл, аудиофайл (й, й)*. Stress is indicated by an apostrophe on the stressed syllable. The length of vowels in Chechen words is indicated by a tilde on a vowel.

According to the author, this dictionary contains about 2000 most frequently used words and phrases in the field of information technology.

3 RESULTS AND DISCUSSION

When creating this dictionary, the authors tried to use the means of the Chechen language, using native Chechen words to denote concepts new to the Chechen language. This principle has great potential for creating new concepts. In this case, we can cite the word "маша" (trans. web), which is used to denote the concept of "network". The following phrases with this word are interesting: компьютерийн маша - computer network; хаамашдIалун маша - data transmission network; пакетийн маша - packet network, сарабоцу маша - wireless network; юкъраллин маша - social network. The author did not translate or transmit in the Chechen language international words that have become firmly established in the everyday life of native speakers of the Chechen language. These are words like administrator, adapter, address, etc. To transfer new concepts into the Chechen language, the authors used Chechen suffixes for adjectives:

1. **Stem + suffix**, i.e. creation of a new concept by adding suffixes to the stem, for example: security - кхе̃рамзалла
2. **Noun + verb**, i.e., for example: included (in the list) - *юкъатоьхна.*.
3. **Noun + noun**, i.e., for example: motherboard - *нана-плата*.
4. **Definition of one value using a phrase**. For example: paging - *тIекховсуметтиг,* underlined – *кIел сиз хьаькна*.
5. **Generating a new meaning with the help of paired words**. For example: network interface - *веб-машин интерфейс*, an auxiliary word is added to the first word through a hyphen, which clarifies the first word, making it unambiguous in this context.
6. **Borrowing concepts from other languages by translating them**. Direct translation. Translation of root words: *computer – компьютер – компьютер*, translation of phrases: social network - social network - *юкъраллин маша*. Translation by meaning: creation of a new concept based on the meaning: : *key – кла́виша – пиллиг, keyboard – клавиатура – пилгу*. This concept is formed from two words-roots «пилг» и «у».

The development of computer vocabulary in the Chechen language occurs mainly by borrowing from the English language through the Russian language. By tracing, that is, the concepts of one language are transmitted to another language by literal translation (TL). (Bazylev V.N., Zakharova L.D.). As you can see, the borrowing of vocabulary occurs with the

development of a new branch of knowledge, i.e. borrowed special vocabulary from the fields of computer technology, economics, agriculture (Almurzaeva P. Kh., 2017).

Borrowed vocabulary is completely subject to the laws of the host language, undergoing phonetic, spelling, grammatical changes (Dasovkhadzhieva Azhurat Andievna, 2019). Computer terminology translated from English can be identified by the following morphological features:

Words with an “ing” ending, for example: graphical network monitoring - *graphical network monitoring – графический сетевой мониторинг – графикин машин монитор**инг;** bracketing value – значение брекет**инг**а – брекет**инг**ан маьIна.*

The presence of the ending "er" at the root of the word, for example: *Printer – принтер – принтер; adapter –адаптер – адапт**ер**.*

The basis "comment", for example: ***the comment is removed from the file – комментарий удаляется из файла –*** *комментарий файл юкъара дIайоккхуш ю; a comment is inserted –* ***вставляется комментарий –*** *комментарий юкъахIоттош ю.*

The suffix "ment", for example: *an argument must be a complex number – аргумент должен быть комплексным числом – аргумент комплексан терахь хила деза; software and hardware complex for scientific experiments – программно-аппаратный комплекс для проведения научных экспериментов – Iилман эксперименташ ян лерина программийн аппаратийн комплекс.*

This is especially valuable given that Chechen speakers often use Russian adjective suffixes when using international words in their speech.

The above phrases for naming concepts from the computer sphere are absolutely new for the Chechen language. In order for them to become firmly established in the lexicon of native speakers of the Chechen language, it takes time and practice to use them in speech.

According to the Department of Applied Semiotics of the Academy of Sciences of the Chechen Republic, the Chechen language has been introduced into the text editor and operating systems of the Linux. Negotiations are also underway with Microsoft Corporation on the introduction of the Chechen language into the Word text editor. Native speakers of the Chechen language, after introducing their language into a text editor, will be able to type in these text editors, check the spelling of words (Department of Applied Semiotics of the Academy of Sciences of the Chechen Republic, http://ps95.ru).

As they write in their article “Nokhchiin mettan lexikin electronan base” Badaeva A.S. and others, several electronic programs have been created in the Department of Applied Semiotics of the Academy of Sciences of the Chechen Republic: TsmIerdosh - цIердош, цунах кхолла делла юкъаметтигаллин билгалдош легаден программа (program for declension of relative adjectives); Bilgaldosh - билгалдешан дошкхолларан, кепкхолларан юьззина парадигмаш хIиттаен программа (program for creating complete paradigms and adjective forms); Nokhchiyn_tsIerash - нохчийнматтахь цIераш, фамилиш легаен программа (program for declension of names and surnames) (Badaeva, A.S. and Kurbanova, S.A., 2016). To create these works, a lot of work has been done on the digitization of texts. The presence of some written texts is not enough, you need to markup so that the program can give out the information you are looking for.

Such programs are a means of bringing the Chechen language into the field of information and communication technologies, where they can be used by all students of the Chechen language who write in the Chechen language. These programs are especially useful for teachers and students.

As part of the textbook “Translation Practice: Text book for students in the direction of information and communication technologies” (Abdullahitov R.Sh. English., 2014) we have compiled a short English-Russian-Chechen glossary of computer vocabulary. We have developed a textbook for students of the Faculty of Computer Technologies based on "Infotech English for computer users" (Remacha Esteras, S., 2008). The most frequently used words and phrases that reveal the realities of the computer sphere have been selected. With subsequent translation into Russian and Chechen. The glossary contains about 2700 terms and words that are often used in computer technology. When creating this dictionary, we tried to make the most of the resources of the Chechen language, taking into account the grammatical, word-formation norms of the language. According to experts, terminology in the field of information technology in the Chechen language is in its infancy. We still have to write dictionaries on this topic. Today, we know only one dictionary specially written on this topic by Umarkhadzhiev S.M. ., Astemirov A.V., Askhabov Kh.I., Badaeva I.S., Vagapov I.D., Izrailova E.S., Z.A. Sultanov. (Umarkhadzhiev S.M., 2016) Below is a part of the glossary compiled as part of the textbook “Translation Practice: Text book for students in the direction of information and communication

technologies" (Abdullahitov R.Sh. English., 2014) (Table 1).

As you can see, in the above part of the dictionary, if you look at some words, they **remain the same in all languages**, for example, the terms: *applet (анг) – апплет (рус) – апплет (чеч); Internet – интернет – интернет; Java – Java – Java; Assembler – ассемблер – ассемблер; Artificial Intelligence - Искусственный интеллект - Искусственни интеллект; Authorization Авторизация – Авторизаци.* **Partially coinciding**: *appliance – прибор – прибор; Aspect ratio – Аспектное отношение – Аспектни юкъаметтиг; Assembly language – Язык ассемблера – Ассемблеран мотт; Arithmetic logic unit(ALU) – Арифметика-логическое устройство (АЛУ) – Арифметико-логически д1ах1оттам; Alphanumeric keys – Алфавитно-цифровые клавиши - Алфавитни-терахьийн пиллигаш*. **Completely non-matching**: *Accustomed to – Привыкать к чему либо – Цхьана х1уманах волар; Average speed – Средняя скорость – Юкъара сихалла; Attribute – Признак, свойство – Башхало, билгало; Attachment – Вложение, устройство – Юкъадиллар, д1ах1оттам; Adjusting – Регулирование – Тадар; Adopted keyboard – Принятая клавиатура - Т1еэцна пиллигийн у; Alert – Тревога, сигнал – Орца даккхар*.

Under the expressions: "the same in all languages"; "partly matching"; "completely non-matching". This refers to whether the same concepts are denoted by the same word in all three languages. For example, the term "applet" is translated into Russian as "applet", and into the Chechen language it is translated as "applet". This term is completely coinciding in three languages. The term: «*Aspect ratio» – «Аспектное отношение» – «Аспектни юкъаметтиг»* is partially coinciding, because each of the languages uses, although partially, its lexical base to translate this term. The term: "«*Average speed» – «Средняя скорость» – «Юкъара сихалла»* is completely inconsistent, since each language uses only its own lexical base to translate this term. Does not resort to borrowings from other languages. Which is one of the ways to develop the language, since the language uses only its lexical base to translate new concepts. But still, as you can see from the glossary, most terms from the computer sphere have the same verbal form in three languages. For example: *web editor (eng) – Веб-редактор (rus) – Веб-редактор (chech)*. This should not be taken as a shortcoming in the development of the language, or as the poverty of the lexical base of the language. These terms are well-established in the post-Soviet space. And using them only facilitates the development of computer terminology. After all, it is important that native speakers of the Chechen language use these terms. And native speakers are already accustomed to many international terms. It is not enough to write only dictionaries, if they are not used by native speakers, for the development of the language. But in everything there should be a measure. If it is possible to use the resources of the Chechen language for new concepts without distorting the content, then of course it is more profitable to use the possibilities of the Chechen language.

As for the above glossary, it needs to be checked by Chechen language specialists for grammatical, lexical and stylistic errors, as well as computer specialists. Computer technologists can check new Chechen terms for consistency of their content with terms from English and Russian languages. In our opinion, it would be useful to add their class indicators to the Chechen terms, since this can have a semantic difference ((**request** хаттар *(д, д)*, хаам *(б, б)*. Also indicate the length of the vowels, which is also a semantic element of the words of the Chechen language. The indication of longitude makes it easier to read words for all students of the Chechen language. If class indicators change the meaning of the term, then it is advisable to add examples of the use of terms, for example, the term: (**request** хаттар *(д, д)*, хаам *(б, б)* has two translations into the Chechen language: *хаттар (д, д), хаам (б, б)*, it is necessary to give examples of the use of these terms in the Chechen language. Umarkhadzhiev S.M. gives such examples: хаттар (д, д), хаам (б, б).

- a request was received to reset all cached data - кеш цIанъе аьлла хаам кхаьчна;
- a request for synchronous synchronization was received – синхроне синхронизаци ян хаам кхаьчна;

Table 1: English-Russian-Chechen glossary on information and communication technologies.

English language	Russian language	Chechen language
Abbreviation	**Аббревиатура, сокращение**	**Аббревиатура, дацдар**
Access database	Доступ к базе данных	Хаамийн гуламана т1екхочийла
Access the Internet	Доступ в Интернет	Интернетана т1екхочийла
Accustomed to	Привыкать к чему либо	Цхьана х1уманах волар
Adjusting	Регулирование	Тадар

- a request to turn off was received - дІаяйъа хаам кхаьчна;
- invalid request - нийсадоцу хаттар;
- password request error - пароль хаттарехь гІалат ду.

In the above examples, the term “request” is analyzed as it is translated into the Chechen language. As we can see, this term is translated into the Chechen language by two terms “*хаам*”, “*хаммар*”. If we analyze the above terms, we can find out that the term " *хаам* " has the meaning of " notification", "notice". The term " *хаммар*" trans. "request" from the stem " *хамма*" trans. "ask". These terms are translated into Russian by the single term "request". Such work on the word contributes to the development of the language, new semantic shades of existing words appear. These examples are taken from the Dikdosham online dictionary (Dikdosham).

4 CONCLUSIONS

If in English and Russian these terms are well-established, then in the Chechen language the process of forming the base of computer terminology continues. In order to introduce computer terminology to the masses, we, within the textbook for students of computer technology (Abdullahitov R.Sh. English., 2014), have compiled exercises. Instructions for the exercise "Find Russian and Chechen equivalents." When performing this exercise, students work out the terms in English, Russian and Chechen. When it is necessary to translate or learn terms into the Chechen language, some resistance is felt on the part of students. This happens because the students are not used to doing the exercises of translating from someone's language into the Chechen language. Some terms are used with a new meaning or with a different shade of meaning, which also causes resistance. Doing as many exercises as possible using the Chechen language will help students not be forced to use the Chechen language, both for educational purposes and in professional and personal communication. In order for computer terminology to spread among users of the Chechen language, the joint work of philologists, linguists, programmers and teachers of the Chechen language and foreign languages will be required. Foreign language teachers can build the educational process using computer vocabulary in English, Russian and Chechen. At the moment, we can say that there is only one dictionary of computer terminology (Umarkhadzhiev S.M., 2016) in the Chechen language. Research work in this direction needs to be continued, as we see, there are resources, and there is a need for this.

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