Corpus and Experimental Methods as the Components of the Cognitive Research of the Concept Language Policy

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Abstract

This article deals with the theoretical basis of cognitive research of the language policy concept. Corpus and experimental methods of the concept have been analyzed. The concept language policy is an object of different discourses, so as a language phenomenon it deals with the text taken into account the frequency of use, establishing a list of words related to this concept to establish the features of understanding the phenomenon of language policy by native speakers. The experimental techniques, namely, an associative experiment, the method of subjective definitions have been used. The corpus research methods have been applied to clarify the obtained results. Corpus-based and corpus-driven approaches to understand the concept have been analyzed. Some experimental methods have been used to study the content of the concept and its features. Such techniques allow obtaining information about the perception and interpretation of the concept under study by human consciousness. The study consists in the maximum coverage of the methods of analysis of the concept language policy. The theoretical component of the study of the concept language policy is analyzed. The aim of the article is to identify the necessity and possibility of combining several methods of studying the concept within the framework of linguocognitive analysis. To meet this aim, it is necessary to define the following objectives: 1) to describe the approaches to the corpus and experimental methods; 2) to point out the essence of corpus analyses; 3) to corpus analyses to identify the peculiarities of the concept’s content.

Keywords: cognitive linguistics, corpus linguistics, experimental methods, concept language policy, associative experiment, corpus-guided research

1. Introduction

The relevance of the study lies in the fact that today there are no works dedicated to the study of the concept language policy in terms of corpus and experimental methods, in addition to those that were studied by us earlier. The new materials and earlier ones (Biber, 2010; Dilai & Dilai, 2021; Dobrushyna, 2021a; Flowerdew, 2012; Gries & Stefanowitsch, 2006; Klymenko, 2017; Koreneva, 2019; Newman, 2011; Stefanowitsch, 2020; Tognini-Bonelli, 2001; Zukovska, 2020) have been analyzed in this research. In the work Corpus linguistics: A guide to the methodology A. Stefanowitsch (2020) defines corpus linguistics as one of the methods to the study of language. Thus, corpus linguistics is defined as “the investigation of linguistic research questions that have been framed in terms of the conditional distribution of linguistic phenomena in a linguistic corpus”. In this research paper the language usage plays an essential role, so we agree on the point that “for those who do see language usage as central corpora must continue to play a critical role in the development of the field (Newman, 2011). One can see that the analysis is conducted within a corpus, and in the given research, we will pay attention not only to the corpus analysis of the concept language policy, but the corpora correlation with the cognitive study as well as the necessity of the use of experimental techniques while analyzing the concept by the means of both corpus and cognitive linguistics.

The research of the concept language policy is conducted based on cognitive analysis, because according to J. Newman (2011) “cognitive linguistics brings balance to the study of language, offering linguists a more rounded and more complete agenda for research than the relatively circumscribed, self-absorbed, self-referential, inward-looking kind of theorizing which constituted mainstream linguistic research … “. But as it has been highlighted (Dobrushyna, 2021a) corpus analysis plays an important part in the cognitive research because the necessity to use corpus research methods in cognitive linguistics is explained by the fact that there is a lack of formalized methods of testing and approbation of results while
conducting the conceptual analysis (Klymenko, 2017; Zhussupbekova et al., 2018). Corpora are relevant to all the main topics of interest in cognitive linguistics: metaphor, polysemy, synonymy, prototypes, and constructional analysis (Newman, 2011) that is why the concept language policy is analysed from this perspective.

It is necessary to define the term corpus as a corpus linguistic phenomena. According to S. Gries and A. Stefanowitsch (2006) corpus study of languages “has actually been around for much longer than is commonly assumed: Early corpus-based work even includes work from the 19th century …” and “during the past few decades … has rapidly become an autonomous methodological paradigm within linguistics”. J. Newman (2011) clarifies the importance and necessity of using corpora as a part of the cognitive research: “If cognitive linguistics is to fully develop as a field of linguistics grounded in actual usage of language, then corpora are not just one more type of data to be considered along with other modes of inquiry such as intuition, experimentally based methods etc.”. Also, he stated that corpus study shows usage, so corpora are “arguably, the most essential kind of data that a usage-based cognitive linguistics should rely on” (Newman, 2011). Corpus linguistics is a field of study, the essence of which … has been thoroughly analyzed (Flowerdew, 2012).

A. Stefanowitsch (2020) mentions the term corpus, while speaking about corpus linguistics, as the one that refers to a collection of samples of the language use which has some peculiarities: the authentic examples of the language use, the collection is representative of the language variety under investigation (Tognini-Bonelli, 2001; Zukovska, 2020; Khaybullina et al., 2020) and the collection is large. Here it is necessary to state that notwithstanding such collection is relatively big, still it does not contain all linguistic phenomena (Stefanowitsch, 2020). But we will deal with the finiteness of the corpus further. Continuing the enumeration of the features of the corpus, it should be stated that “the texts in such a collection are often (but not always) annotated in order to enhance their potential for linguistic analysis” (Stefanowitsch, 2020). Also, these texts “may contain information about paralinguistic aspects of the original data (intonation, font style, etc.), linguistic properties of the utterances (parts of speech, syntactic structure), and demographic information about the speakers/writers” (Stefanowitsch, 2020; Zhanysbayeva et al., 2021). It is also highlighted that there is necessity to differentiate linguistic corpus from other types of text collections, so the notion “corpus” is understood as linguistic corpus when discussing linguistic ideas (Stefanowitsch, 2020).

2. Materials and Methods

Among the scientists who analyzed two approaches to corpus studies there are: Biber (2010), Flowerdew (2012), Zukovska (2020), Dilai (2021). The corpus-based and corpus-driven approaches are considered to be two main approaches to corpus research, and as L. Flowerdew (2012) stated “the main contention revolves around ‘corpus-driven’ vs. ‘corpus-based’ linguistics and whether corpus linguistics is a theory or a methodology”. The representativeness of the linguistic corpus is the of the major focus for the corpus-based study (Biber, 2010). It is stated (Dobrushyna, 2021a) that the primary goal of corpus-based research is to analyse the systematic patterns of variation and use for those predefined linguistic features (Biber, 2010; Korbozerova, 2021). The research is based on a representative sample of real texts (Zukovska, 2020). In particular, the researcher confirms or clarifies previously obtained data using corpus analysis (Dobrushyna, 2021a). Also, it is stated that such an analysis is deductive, because it begins with the already existing descriptions, categories and classifications, which are operated by the linguist before working with the corpus, which are then tested on corpus data (Zukovska, 2020). It should be specified that corpus-based research “often makes it necessary to operationalize subjective qualitative phenomena on the basis of quantification”, but “corpus-based studies differ as to the role quantitativity plays in the evaluation of the results” (Gries & Stefanowitsch, 2006). The corpus-based approach aims to find empirical confirmation of linguistic hypotheses, to select relevant examples from a huge database, to statistically process linguistic data (Dilai & Dilai, 2021). But it should be mentioned that corpus data cannot be adequately interpreted without intuitive judgments of linguists about language. This research will be conducted on the basis of corpus-based approach, as aim of this research is to confirm, clarify or confute the previously established language data based on the analysis of definitions and experimental approaches to the concept language policy study.

On the contrary, the corpus-driven approach “is more inductive, so that the linguistic constructs themselves emerge from analysis of a corpus”, this type of a research uses the capacity of the corpus to identify language categories and units that have not been previously observed (Biber, 2010). Also, supporters of the corpus-driven approach regard corpus linguistics as essentially a theory with corpus enquiries revealing hitherto unknown aspects of language (…) (Flowerdew, 2012).

It should be added that the corpus is seen as more than a repository of examples to back pre-existing theories or a probabilistic extension to an already well-defined system, it gradually builds a theory in the presence of evidence (Tognini-Bonelli, 2001; Zukovska, 2020; Dobrushyna, 2020; Dobrushyna, 2021b).

In modern linguistics, corpus analysis is usually used to identify the frequency of lexical units, grammatical forms, features of semantic contextual dynamics in different periods of time, as well as to search for information about the common occurrence of lexical units, the peculiarities of their compatibility in the natural context (Shutova, 2018).

3. Results and Discussion
In this study, we provide examples of how conceptual verbalizers can be analyzed. The first option of the study is based on existing data from the English corpus. Here we turn to the website english-corpora.org (English Corpora, 2020) and find out the lexemes-collocates that verbalize the concept language policy. All texts and data that are the basis of the study are exclusively those that are already in the corpora, no texts have been added. The second option is to manually create data corpora using AntCon. Conducting such an analysis helps to establish the verbalizers of the concept while analyzing a particular area, and on the basis of the actual selected texts. In this case, such a corpus was a corpus of educational texts dedicated to language policy.

The following is a detailed analysis of the concept research process based on the corpora of texts. The first to be considered is the study of collocates-conceptualizers on the basis of already existing data corpora of the site english-corpora.org (English Corpora, 2020). The principle of frequency of use was defined as follows: on the site english-corpora.org in the search section the function collocates was selected (Figure 1).

Figure 1. The first step to analyze the verbalizers of the concept language policy based on the corpora

It was identified the 4 closest words on the right and left, which are most often used with the lexical unit language policy (Figure 1).

The largest volume is the News on the Web (NOW corpus) – 2653 mentions. The top ten most used collocations include: university, national, school, english, education, official, implementation, 2016, schools, change. The frequency of use of such lexical units as bilingual, multilingual is 9 mentions, trilingual and multilingualism – 7 and 4 respectively (Figure 2).

Figure 2. Collocations based on the NOW Corpus

Having analyzed The Wikipedia Corpus and the frequency of use of the concept language policy verbalizers, it should be
noted that the query "language policy" contains 479 references. The subjects of these mentions are mainly of a linguistic nature, such as Japanese, Serbo-Croatian, Ukrainian, languages of the United States of America, Scots language, etc. Various organizations dealing with language policy (European Union) are also mentioned. The principle of searching for lexical units to form the nominative space of the concept language policy does not differ from the previous one. In terms of frequency, the top ten most used words include: official, government, Quebec, languages, planning, linguistics, education, Catalan, European, union (Figure 3).

The frequency of use of the lexical unit language policy in the Corpus of Contemporary American English is 53 mentions. A total of 130 collocations are displayed. The lexical units policies and new are most often mentioned, three mentions belong to the lexical unit education, bilingual, regarding, directly, conference, having, state (Figure 4).

According to iWeb: The 14 Billion Word Web Corpus, the following words are worth mentioning: PLANNING (45), NATIONAL (31), ENGLISH (30), EDUCATION (27), OFFICIAL (26), RESEARCH (24), ISSUES (22), INAPPROPRIATE (18), COLONIAL (18), WELSH (16). The most common collocations are: implementation, official, national, Sinhala, education, implementing, planning, issues.

In order to analyze the immediate environment of the verbalizer of the concept language policy, we have slightly changed
the procedure for finding collocations. All the same corpora of texts were studied. We do this to include COCA, NOW Corpus (News on the Web) and iWeb: The 14 Billion Word Web Corpus. In order to detail the nominative space of the concept and compare the results of the analysis, we applied the same procedure to The Wikipedia Corpus. So, the procedure is as following: in the LIST option we enter the studied phrase in capital letters (as indicated in the search guidelines: In NOW, you can usually find the collocates for high-frequency words like this, as long as you search by "lemma" (capitalize the "dictionary form" of the word(s), eg DECIDE instead of decides) (English Corpora, 2020).

It is worth noting that, despite the fact that we have identified such parts of speech as noun, verb, adjective, we have not highlighted such parts in the construction of the nominative space of the concept, on the contrary, we combined all the lexemes that verbalize the concept on the principle of frequency.

A study of the colloquialisms of the lexical unit language policy in the NOW Corpus (News on the Web) has the following results. In the following picture we see the following results (Figure 5).

![Figure 5. A study of the colloquialisms of the lexical unit language policy in the NOW Corpus](image)

The frequency of use of the phrase reaches 3128 times (taking into account all forms of the components of the phrase: language policy (2653), language policies (397), languages policy (74) and languages policies (4)). The total number of uses of the lexeme with adjectives, nouns and verbs is 1101 (915, 104 and 82 uses, respectively). For consideration, we have selected the most commonly used lexemes, which belong to the above parts of speech. Among the collocations there are: new (200), official (120), national (121), draft (29), current (33), English (33), revised (24), Irish (23), dual (17), school (15), proposed (15), Maori (14), single (12), English-only (12), university (11), inclusive (11), comprehensive (10), education (9), Afrikaans (9), African (8), bilingual (8), state (8), determine (8), adopt (5), make (3), identity (3), implement (3) (Walsh, 2012).

After analyzing the iWeb: The 14 Billion Word Web Corpus, we need to focus on the following: the number of adjective-collocations is 366, noun-collocations 54 and verb-collocations 27. The total number of lexemes with adjectives, nouns and verbs is 447, which is more than twice less than in NOW Corpus (News on the Web). Thus, among the collocations we single out the following: official (83), English (22), national (28), inappropriate (18), colonial (15), welsh (14), school (10), English-only (9), inclusive (8), effective (6), Irish (5), foreign (5), respondents (3), minority (3), made (3), gender (2), journal (2).

To compare the fact that there is no significant difference in the models of data analysis, we chose The Wikipedia Corpus. The principle of analysis has not changed. Thus, we distinguish the following lexical units: official (29), state (19), government (9), national (9), new (6), Catalan (4), see (4), Japanese (4), Yugoslav, soviet, minority, Chinese met three times, inclusive, bilingual, European, Filipino, made, Faroese, global are used 2 times each.

Of course, by reducing the collocations to one, and what precedes the phrase, we have thus reduced the number of uses of certain units. The result is presented in the following table. The first column indicates the verbalizer itself, the second column shows the number of uses according to a comprehensive study, both the collocations to the left of the phrase and to the right of it; the third column lists the collocations that precede the lexeme and help detail this study (Table 1) (Chua, 2010).
Table 1. Ranges of collocation analysis

<table>
<thead>
<tr>
<th>Verbalizer</th>
<th>Wide range of analysis</th>
<th>Narrow range of analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>adopt</td>
<td>79</td>
<td>5</td>
</tr>
<tr>
<td>bilingual</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Catalan</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>colonial</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>education</td>
<td>76</td>
<td>9</td>
</tr>
<tr>
<td>English</td>
<td>74</td>
<td>55</td>
</tr>
<tr>
<td>European</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Government</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>inappropriate</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>national</td>
<td>114</td>
<td>189</td>
</tr>
<tr>
<td>new</td>
<td>10</td>
<td>221</td>
</tr>
<tr>
<td>official</td>
<td>88</td>
<td>299</td>
</tr>
<tr>
<td>proposed</td>
<td>34</td>
<td>15</td>
</tr>
<tr>
<td>schools</td>
<td>141</td>
<td>25</td>
</tr>
<tr>
<td>soviet</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>state</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>university</td>
<td>177</td>
<td>11</td>
</tr>
<tr>
<td>Welsh</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

Thus, the nominative space of the language policy concept includes the following verbalizers: adopt, bilingual, catalan, colonial, education, English, European, government, inappropriate, national, new, official, proposed, schools, soviet, state, university, Welsh.

Previously in this study, it was emphasised that it is impossible to trace all the changes, variations within corpora, so J. Newman (2011) argues that “the design and content of currently used corpora need to be rethought if corpora are to provide all the types of usage data that cognitive linguists require”. We should agree upon the statement that corpora are incomplete in at least two ways (Stefanowitsch, 2020). As it is stated that regardless of the size of the corpus, they are “obviously finite, and thus they can never contain examples of every linguistic phenomenon” (Stefanowitsch, 2020). Here it is essential to highlight that own corpus of texts to analyze linguistic phenomenon language policy has been created. Without creating a special corpus, it would not be possible to analyze, for example, the structural part of the concept LANGUAGE POLICY – language policy IN EDUCATION – in its full, simply because the word list created on the basis of the texts given in corpora is, first of all, not sufficient, and secondly, it is complicated to set the required search parameters while analyzing specific, “narrow” phenomenon based on a specific discourse. The analysis has been conducted on the basis of the created corpus of texts and analyzed using the computer program AntConc. The other problem consists in the linguistic usage which is not homogeneous but varies across situations and here such examples as dialect, sociolect, genre, register, style have been given (Stefanowitsch, 2020; Stukalenko et al., 2013). Naturally, it is complicated to include all the alterations: “it is, for all intents and purposes, impossible to include this variation in its entirety in a given corpus” (Stefanowitsch, 2020). It is also mentioned that this problem concerns not only the “studies that are interested in linguistic variation but also the studies in core areas such as lexis and grammar …” (Stefanowitsch, 2020).

The unity of both corpus and cognitive studies supposes the combination of qualitative and quantitative aspects of the research. Thus, corpus methodology supports the empirical basis of cognitive linguistics as a theory that is in search of the optimal methodology as well as combined with the cognitive theory, goes beyond instrumentalism, statistical analysis to conceptual understanding of corpus data, the study of mental lexicon as an ideal representative and balanced model, to reproduce which should be sought by corpus compilers (Dilai & Dilai, 2021). The statistical analysis to the concept under study helps to examine the nominative space of the concept language policy on the materials of texts created by native speakers. Thus, more than 25 texts based on the educational discourse have been analysed and 8 words-identifiers that are used more than 1000 time have been selected (Dobrushyna, 2021b). It has been found that among the nominations of the concept language policy IN EDUCATION a significant number are those that belong to the field of education.
Education, School, Teachers. Since this study aimed to identify verbalizers of the concept language policy IN EDUCATION, it should be emphasized that commonly used nominations inherent in the concept language policy, such as multilingual, international, European, cultural, etc., are an integral part of verbalisation of the concept in various aspects of the research (Berkimbaev et al., 2012).

If one cannot deny the fact that regardless of some issues with the corpus study such a method is indispensable, especially while analyzing the concept which is difficult to define with the help of dictionaries, the same applies to the experimental techniques for the same reason. For example, the method of subjective definitions, helps form the nominative space of the concept language policy: it is found out that the core of the concept language policy is created by the cognitive feature policy that determines the use of languages, which is closely connected to dictionary definitions or definitions given by researchers of this notion. According to O. Koreneva (2019), it is necessary to utilize experimental psycholinguistic data while conducting corpus research to achieve greater naturalness and prototypicality. In this research we completely agree with this statement, because the word combination language policy deals not only with linguistics but with a great variety of discourses, first and foremost it is the object of political, public discourses, and the way people see and understand this phenomenon is crucial. In order to analyze the concept, its content, peculiarities, etc. there can be used different experimental techniques. These techniques allow obtaining information about the perception and interpretation of the studied concept by consciousness (Dobrushyna, 2020; Kim et al., 2020). The reactions obtained in their entirety help to form an idea of what meanings or frames of which situations lie behind the studied concept for the bearers of a particular culture (Khazretali et al., 2018). So, the free associative experiment is used to obtain maximum information about the structure of the human mental lexicon and properly organize terminological databases to facilitate access and use of specialized knowledge by users (Koreneva, 2019; Afanasev et al., 2019). Also, it is stated that when a person conceptualizes concepts, a large number of representations are used, and it is motivated by the association of words (Koreneva, 2019). In this research, more than 120 people took part, and we may summarize that the location of the verbalizers of the concept language policy depends on the extralinguistic factors, such as a political, economic and social situation in the given society (Podoliak, 2021).

4. Conclusions

The conducted corpus analysis revealed both common and different conceptual features, which are conditioned by the cultural and historical peculiarities of the formation and development of the nation, as well as the individual peculiarities of the respondents, and their own life experiences. In order to analyze the specificity of the semantic structure of the concept language policy there have been described the main approaches to the concept study (linguocognitive and linguocultural ones). It has been mentioned that the experimental methods as a part of linguistic experiment permits the researcher to identify the content of the concept in the cognitive perception of native speakers. The associative experiment gave us the key information of native speakers’ understanding of the concept Language Policy.

Thus, it has been found that the most effective way is to study the concept language policy using a combination of various methods, namely corpus and experimental methods, with the aim of a more detailed and in-depth analysis of the concept. Each of these methods specifies, supplements previously identified information, or provides new data about the concept language policy. In this study, in addition to the basic information, we paid attention to the corpus-based approach, as we believe that it will help to analyze already established data in research of the concept.

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