



The “Academic Activity” Component in Multilingual Mental Lexicon: an Experimental Study

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Abstract

The paper presents an experimental study of the “academic activity” component in mental lexicon of trilingual university students —native speakers of the Komi-Permyak and Russian languages acquiring English as their L3. Three trials of a chained associative test with identical stimuli in the three languages (every trial including stimuli in one language only) were carried out with a lapse of two weeks’ time each. Among the whole total of experimental data (480 associative chains) associative reactions belonging to the “academic activity” component (words denoting objects, notions, characteristics etc. of the academic process) were singled out. The reactions were analyzed from the point of view of their quantity, thematic structure and languages of representation. The results prove that the “academic activity” component in our participants’ mental lexicon demonstrates high stability of its size (quantity of lexical items) and content (concepts denoted by lexical items) irrespective of the language (L1, L2 or L3) in which the stimuli were processed. The main factor that determines the size of each language share within the component is its individual usage frequency; proficiency level (high vs. low) and conditions of acquisition (natural vs. classroom settings) have shown little influence upon associative strength of a particular language. We assume that the obtained results denote some typical features of semantic components in multilingual mental lexicon and can be of use for further studies in the field of multilingualism.

1. Introduction

In most general terms mental lexicon is understood as an individual reflection of linguistic knowledge stored in human memory. Mental lexicon contains the entire volume of multifold information connected with lexical items (their phonological/orthographic, semantic, morphological, syntactic etc. properties) and represents an important aspect of human language capacity [1, 2]. As far as language is one of the main means of cognition, mental lexicon fulfills the functions of arranging, storage and processing not only proper linguistic, but also cognitive data. Thus, it can be interpreted as a huge psychophysiological repository of diverse information about the surrounding reality and linguistic units denoting it, and is formed as a result of personal and social experience of an individual [3, 4].

Mental lexicon is characterized by complex structure made up by a diversity of polytypic links between its units (abstract verbal representations). The strongest of these links are semantic ones which determine formation of semantic groups and fields in language and of semantic categories in cognition. Reflecting individual experience of the surrounding world perception semantic links form a number of specific (sub)components in mental lexicon which correspond to various spheres of human activity.

Multilingual mental lexicon exists in form of an extended system which includes verbal representations of two or more languages related to the more or less common cognitive basis [5]. Organization of a multilingual mental lexicon allows extensive interaction between units of various languages and their mutual influence; moreover, current experimental research proves that activation in multilingual mental lexicon is non-selective: semantically related words of two or more languages are activated automatically and simultaneously while processing speech in one language only [6, 7]. This leads to the assumption that the structure of multilingual mental lexicon includes code-mixed (made up by units of different languages) semantic components which reflect certain fragments of reality and determine effective communicative behavior of a multilingual speaker. Evidently, organization and functional characteristics of such components will vary depending on the number of languages known to a multilingual speaker, bilingualism type, language proficiency level etc.

2. Objectives, methodology and research design

The paper presents an experimental study of a professional activity semantic component in multilingual (trilingual) mental lexicon. The semantic component under consideration encompasses a miscellaneous set of semantic fields and thematic word groups denoting various aspects of professional activity of an individual. This component reflects one of the most essential aspects of a



person's social experience; it secures and fuses a vast amount of both special professional and common practical knowledge into a holistic polystructural formation. It is evident that professional activity component in mental lexicon is a highly variable structure: its content and structural characteristics are to a great extent determined by special features of a certain professional activity type. The present research is focused on professional activity of university students which is realized in the sphere of academic studies; so the component under consideration is the "academic activity" component.

The research was carried out with a group of bilingual native speakers of the Komi-Permyak (L1) and Russian (L2) languages (12 persons aged 17-21, students of the Perm state pedagogical-humanitarian university, the Komi-Permyak department); at university they study English as their L3. The preliminary survey showed that the participants assess themselves as equally fluent in their L1 and L2 and use the two languages equally often both in the academic and everyday communication. As for their L3, it is characterized by low proficiency according to the results of the CEFR (Common European Framework of Reference) placement test [8].

The method of chained associative test was used in the research. In the course of the experiment the participants were presented a stimuli list of 20 high-frequency words (*book, boy, day, friend, girl, work, man, morning, name, time, woman, come, do, go, have, know, speak, study, think, large, small*) with the task to write down a chain of associative reactions (not less than 6) for every stimulus word; the language of the reactions was unrestricted. The test included three trials with a time lapse of two weeks each; every trial comprised identical stimuli list in a different language: Komi-Permyak, Russian, and English. As a result 480 associative chains were received.

3. Discussion of the research outcomes

Out of the whole total of the experimental data reactions referring to the "academic activity" group were singled out and further analyzed with the help of quantitative and qualitative techniques.

Experimental data analysis showed that stimuli in all the three languages evoked approximately equal quantity of associations denoting various notions and objects connected with students' professional activity (13.1% in the trial with the Russian stimuli; 11.9% — with the Komi-Permyak stimuli; 10.4% — with the English stimuli). As far as the three experimental trials had a significant time lapse between them, we can assert that the participants did not just reproduce the same reactions for the correspondent stimuli in different languages, but each time created them afresh.

The thematic structure of the "academic activity" component revealed in our experiment includes 9 major thematic word groups denoting objects, notions, characteristics etc. of the academic process; the groups vary both in size (number of lexical items) and in the shares of the Russian, Komi-Permyak and English elements (see Table 1).

Table 1. Thematic structure of the "academic activity" component in mental lexicon of native Komi-Permyak-Russian speakers learning English as their L3.

Place of academic activity	<i>Университет (R.-'university'), university, вузö (K.-p.-'university'), библиотека (R.-'library'), класс (R.-'classroom')</i>
Participants of academic activity	<i>Учитель (R.-'teacher'), студент (R.-'student'), велöтчись (K.-p.-'student')</i>
Forms of academic activity	<i>Учеба (R.-'studies'), велöтчöм (K.-p.-'studies'), homework, проект (R.-'project'), доклад (R.-'report')</i>
Objective of academic activity	<i>Профессия (R.-'profession'), образование (R.-'education')</i>
Activities connected with the academic process	<i>Учиться (R.-'study'), велöтчыны (K.-p.-'study'), study, тöдны (K.-p.-'know'), думать (R.-'think'), думайтны (K.-p.-'think'), отвечайтны (K.-p.-'answer'), читать (R.-'read'), read, писать (R.-'write'), write</i>
Academic subjects	<i>Предмет (R.-'subject'), English, кыв (K.-p.-'language'), математика (R.-'mathematics'), история (R.-'history')</i>
Characteristics of academic activity	<i>Усердно (R.-'hard'), прилежно (R.-'diligently'), отлично (R.-'with excellent marks')</i>
Organization of academic activity	<i>Урок (R.-'lesson'), перемена (R.-'break'), практика (R.-'practice')</i>
Objects connected with the academic process	<i>Доска (R.-'board'), парта (R.-'desk'), ручка (R.-'pen'), словарь (R.-'dictionary'), учебник (R.-'textbook'), небöг (K.-p.-'book')</i>



According to the data of Table 1 the major part of the “academic activity” lexis in our participants’ mental lexicon is represented predominantly by means of the Russian language (86.9%); the rest part is divided between the Komi-Permyak and the English shares (8.5% and 4.6% respectively). Such correlation does not depend on the language of the stimuli: in all the three trials it remains stable showing only statistically insignificant oscillations.

A highly unbalanced ratio of words of the Russian (native) and English (foreign) languages in the “academic activity” component of our participants’ mental lexicon can easily be accounted for by their unbalanced proficiency level. Being seriously restricted in the size of English vocabulary and having little practice in using the English language, our participants prefer to integrate English stimuli into their native language associative contexts. Nevertheless, within a number of the associative chains produced for the English stimuli we find Komi-Permyak reactions given along with the Russian ones as translation equivalents, e.g. “speak” – “велӧтны”, “учиться”/“study”, “study” – “кыв”, “язык”/“language”, “large” – “небӧг”, “книга”/“book” etc. Occurrence of such translational duplicates leads to the conclusion that bilingual L3 learners tend to base upon both their native languages while acquiring a foreign one even in case the academic situation restricts such basing only to the means of one particular native language.

At the same time, significant irregularity of the Russian and Komi-Permyak shares in the “academic activity” component seems to be quite a striking feature taking into account the fact that, as it has been mentioned before, our participants consider the two languages to be their native ones and ascertain their high fluency and approximately frequent usage of both of them in the academic sphere. It should be mentioned that the curriculum at the Komi-Permyak department includes both Komi-Permyak and Russian languages as academic subjects: during the course of studies our participants are simultaneously taught a set of subjects in Komi-Permyak (the Komi-Permyak language, the Komi-Permyak literature, the history of the Komi-Permyak literature, Komi-Permyak folklore), as well as a roughly analogous set in Russian (the Russian language, history of the Russian language, history of the Russian literature, modern Russian literature, Russian dialectology etc.). Therefore, though the academic situation in general is characterized by a predominance of the Russian language used for teaching all the general subjects (pedagogy, philosophy, history of Russia, computer technology etc.), the situation of professional competence formation implies equally active resort to both native languages. Nevertheless, the participants give strongly marked preference to producing the “academic activity” associations in the Russian language, so that the share of the Komi-Permyak associations turns to be at large equalized with the share of the English ones.

The results obtained correlate with the experimental data received from a similar group of participants (university students - bilingual native speakers of the Komi-Permyak and Russian languages) in the study of their actual lexicon (the core part of mental lexicon which includes a corpus of the most high-frequency lexis). When asked to write down a hundred of most frequently used words for both languages, bilingual students produced about 12% of the “academic activity” reactions in Russian and only 3% of the same reaction group in Komi-Permyak [9]. Apparently, in spite of the ethnically-oriented curriculum, Komi-Permyak students perceive academic activity as mostly connected with the Russian-speaking environment and the Russian language as the main tool of its realization. Therefore, the “academic activity” component in their mental lexicon is characterized by significantly unbalanced ranks of not only the native and the foreign languages, but also of the two native languages.

4. Conclusions

The experimental study proves that the “academic activity” component represents one of the major blocks of students’ mental lexicon as it reflects and systematizes a basic mode of their professional experience.

The “academic activity” component comprises a set of thematic word groups denoting various phenomena connected with the academic process (objects, notions, characteristics etc.) and demonstrates high stability of its size (quantity of lexical items) and content (concepts denoted by lexical items) irrespective of the language (L1, L2 or L3) in which the stimuli are processed.

This component is represented in multilingual mental lexicon as a mixed-code formation where words of different languages appear to be steadily ranked in quantity. It seems that the main factor to determine the size of each language share within the component is its individual usage frequency; proficiency level (high vs. low) and conditions of acquisition (natural vs. classroom settings) have shown little influence upon associative strength of a particular language.

We assume that the obtained results denote some typical features of semantic components in multilingual mental lexicon and can be of use for further studies in the field of multilingualism.



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