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CULTURE EFFECTS ON LANGUAGE AND COGNITION IN PSYCHOLINGUISTIC EXPERIMENT

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Abstract. The study is based on two main scientific paradigms – cognitive and discursive. The process of social categorization by American and Ukrainian students has been focused on in a psycholinguistic experiment. Social schemes (personal schemes, action schemes, self-schemes, role schemes, function schemes) in word meanings for words denoting social objects suggested by Ukrainian (n=25, 12 female and 13 male, mean age 21,7±3,0 years, Lesya Ukrainka Eastern European National Universities, Lutsk) and American (n=25, 15 female and 10 male, mean age 22,4±3,0 years, University of Central Arkansas, Conway, USA) students were analyzed. The results of comparative analysis of word meanings based on social categories (schemes) of Ukrainian and American students show that the most frequent social categories among American students are self- schemes, which are connected with individualism of national character of western-culture people. The most frequent social categories among Ukrainian students are action schemes which express pragmatic character of Ukrainian culture. Despite of the various distributions of social schemes in Ukrainian and American students' answers, the indifferent to culture criteria for social categorization are revealed. The results of psycholinguistic experiment show the dual cognitive and discursive character of social categorization which demonstrates the degree of culture impact on human cognition and language.

Keywords: *cognition, culture, language, social categorization, social schemes, word meaning.*

Засєкіна Лариса. Вплив культури на мову і когніцію: досвід психолінгвістичного експерименту.

Анотація. В основі дослідження – дві провідні наукові парадигми: когнітивна та дискурсивна. Процес соціальної категоризації американськими та українськими студентами вивчається в психолінгвістичному експерименті. Були проаналізовані соціальні схеми (особистісні схеми, схеми-дії, я-схеми, рольові схеми, функціональні схеми) у значеннях слів, що позначають соціальні об'єкти, запропоновані українським (n = 25, 12 жінок і 13 чоловіків, середній вік 21,7 ± 3,0 років, Східноєвропейський національний університет імені Лесі Українки, Луцьк) і американським (n=25, 15 жінок і 10 чоловіків, середній вік 22,4 ± 3,0 року, Університет Центрального Арканзасу, Конвей, США) студентам. Результати порівняльного аналізу значень слів, що ґрунтуються на соціальних категоріях (схемах) українських та американських студентів показують, що найпоширенішими серед американських студентів соціальні категоріями є особисті схеми, пов'язані з індивідуалізмом національного характеру представників західної культури. Найчастішими соціальними категоріями серед українських студентів виявилися схеми-дії, що виражають прагматичний характер представників української культури. Результати психолінгвістичного експерименту показують подвійну пізнавальну та дискурсивну характер соціальної категоризації, що загалом демонструє ступінь впливу культури на людське пізнання і мову.

Ключові слова: когніція, культура, мова, соціальна категоризація, соціальні схеми, значення слова.

Засекина Лариса. Воздействие культуры на язык и когницию: опыт психолингвистического эксперимента.

Аннотация. В основу исследования положен подход двух основных научных парадигм: когнитивная и дискурсивная. Процесс социальной категоризации американскими и украинскими студентами изучается в психолингвистическом эксперименте. Были проанализированы социальные схемы (личностные схемы, схемы-действия, я-схемы, ролевые схемы, функциональные схемы) в значениях слов, обозначающих социальные объекты, предложенные украинским (n=25, 12 женщин и 13 мужчин, средний возраст $21,7 \pm 3,0$ лет, Восточноевропейский национальный университет имени Леси Украинки, Луцк) и американским (n=25, 15 женщин и 10 мужчин, средний возраст $22,4 \pm 3,0$ года, Университет Центрального Арканзаса, Конвей, США) студентам. Результаты сравнительного анализа значений слов, основанных на социальных категориях (схемах) украинских и американских студентов показывают, что наиболее частыми среди американских студентов социальными категориями являются личные схемы, связанные с индивидуализмом национального характера представителей западной культуры. Наиболее частыми социальными категориями среди украинских студентов оказались схемы действий, выражающие прагматический характер украинской культуры. Результаты психолингвистического эксперимента показывают двойственный познавательный и дискурсивный характер социальной категоризации, что в целом демонстрирует степень воздействия культуры на человеческое познание и язык.

Ключевые слова: когниция, культура, язык, социальная категоризация, социальные схемы, значение слова.

Introduction

The problem of cognition and language, on the one hand, and culture, on the other hand, is connected with two main scientific paradigms of knowledge: cognitive and discursive paradigms. The bias to one of these paradigms defines method of research which is very important for modern psycholinguistics. Cognitive paradigm (Chomsky 2002; Miller 1990; Sternberg 1985) proclaims the universal cognitive mechanisms which are general for people as human beings despite their natural and cultural space. Moreover language is treated as a part of human cognition and has common with cognition universal nuclear structures, represented by syntax of simple sentence (Chomsky 2002). In this light, the nature of the language is rather cognitive than social.

Discursive paradigm is rooted in cultural and historic theory by L. Vygotsky (1996) and considers symbolic nature of human cognition, since human psychic is mediated by language and possesses the social traits. According to L. Vygotsky, language is purely social system of signs for communication (Vygotsky 1996). The evolution of the signs: icons, indices, symbols reflects the genesis of human cognition (Pierce 1958). Interiorization of social language in human psychic produces individual cognitive process of speech. In modern psychosemiotic studies language is treated as a system of semiotic codes, which denote physical and social objects and relations between them. Culture, following the psychosemiotic studies, is understood as “socially shared information that is code in symbols” (Toomela 1996: 298).

The mental process which greatly demonstrates, on the one hand, the main thinking operations over world comprehension in human cognition, and on the other hand, the impact of culture on thinking process and its reflection in the language is categorization. Other words speaking, categorization is the subject matter of cross-cultural study which can serve as conceptual field for intersection of two scientific

paradigms: cognitive and discursive. In the light of cognitive paradigm categorization can be viewed as cognitive process based on human cognitive operation and represents common categories and essential properties of objects for grouping notwithstanding the culture and language. Thus from cognitive perspective categorization is defined as cognitive process of grouping objects based on their essential properties.

From discursive paradigm perspective categorization is defined as process which deals with social objects and mediated by language as social system of signs for communication. Since languages differ in their phonological, lexical, grammatical and pragmatic structures, categories as product of categorization depend on the language specifics. Therefore, the cross-cultural experimental study of categorization can lead to revealing specific categories and properties for object grouping among representatives of different national and cultural spaces. Thus the cross-cultural experimental study of categorization reveals culture effects on cognition and language.

Categorization is the process in which objects are differentiated, recognized and understood. It also implies that objects are grouped into the categories for some specific purpose (Colman 2003). Categorization as the interdisciplinary subject of study has philosophical roots and viewed as a functional procedure of human mind in Aristotle's, Kant's treatises. The philosophers argued that roots of categorization based on a priori categories and judgments represent universal mechanisms of human cognition (Gould 1978).

The main feature of categorization is equality of all category members as far as they possess the common essential properties of the objects. In the light of Descartes philosophy the categorization is inborn personal ability, which determines the process of world understanding and interpreting. It laid the foundation for rational approach for establishing nature of categorization. From opposite empirical perspective (Gould 1978) newborn person as the tabula rasa or blank tablet absorbs all knowledge about the world with his/her experience. According to rational view predominant categories possess genetic nature and can improve during personal experience. Therefore the cognitive paradigm is based on rational approach to human knowledge and discursive paradigm is connected with empirical ideas about human mind.

The modern cognitive model of categorization introduced by E. Rosch presents category of objects which are rated correspondently to prototype – the most typical representative of the category (Rosch 1987). From this perspective the members of the category are not equal because they have different relations and degrees of similarity to prototype. According to this research the prototypes of categories are various for different languages and determined by the concrete culture, e.g. the prototype for category birds in Russian language is *sparrow*, but in English language the prototype for category birds is *robin*.

The contradiction between philosophical and cognitive theories is solved by differentiation of logical (philosophical) and natural categories. The philosophical understanding deals with logical categories, and cognitive theories determine natural or life categories. According to W. Gudykunst's dual social and cognitive approach (Gudykunst et al. 1989), categorization is the process in which predominantly social objects are differentiated, recognized and understood. Therefore the most typical categorization is represented by grouping social objects on their essential and functional properties. Social categorization is based on personal experience and

enhances cognitive and cultural peculiarities of human cognition. On the one hand, social categorization is characterized by cognitive nature and is connected with all thinking operations: analysis, synthesis, generalization, abstraction, classification and systematization, on the other hand, it possesses discursive nature and is determined by concrete social environment, which can be described by culture and language. Therefore social categorization is process of dual nature: cognitive and discursive which reflects culture effect on cognition and language.

The experimental research of social categorization is expedient on the material of word meaning definition. L.Vygotsky (1996) claimed that speech expresses the cognitive peculiarities of personality, since the word meaning is the main unit of thinking and speech activity and highlights the impact of language on human cognition. According to L. Vygotsky (1996) word meaning is the act of generalization and communication; therefore word meaning as operation of generalization characterizes cognition and as operation of communication characterizes language as system of social signs for communication. Thus cognitive and discursive peculiarities of categorization as grouping social objects based on some properties can be revealed in in the process of producing word meaning for words denoting these objects. In proposed word meanings we can define the main properties which serve as criteria for grouping the social objects, other words speaking, for categorization.

W. Gudykunst (1989) defines social categorization through differentiation of five types of social categories: personal schemes; action schemes; self-schemes; procedure schemes; role schemes (Gudykunst et al. 1989). In our opinion these schemes represent the main criteria or properties for grouping social object as basis for social categorization. Action schemes and procedure schemes are in line with structure of knowledge representation – script introduced by R. Schank et al. (1977).

Script is a structured representation describing stereotyped sequence events in a particular context. The classic example of a script involves the typical sequence of events that occurs when a person drinks in a restaurant: *finding a seat, reading the menu, ordering drinks from the waiter* and contains different actions and procedures. Therefore, some researches treat scripts as a kind of procedural knowledge (Schank et al. 1977). In return the important scheme is omitted in the suggested classification of social categories. This is function scheme which determines grouping the social objects according to their functions. Function is viewed as one of the most important essential properties of the objects. Thereby in our study we distinguish five social schemes as bases for social categorization which are based on W. Gudykunst's schemes: personal schemes, action schemes, self-schemes, role schemes and function schemes. Personal schemes represent grouping social objects according the personal traits; action schemes imply grouping objects according to the various actions and events; self-schemes activate the personal experience for grouping the social objects; role schemes represent main personal roles in grouping social objects; function schemes take into consideration functions of social objects.

Methods

The *aim* of the study is, firstly, to define similar (cognitive) and specific (discursive) characteristics of social schemes as a base for social categorization represented by Ukrainian and American students; secondly, to establish the effect of

culture on human cognition and language. The main method is psycholinguistic experiment. According to modern belief, psycholinguistic experiment has its applicable force in many scientific fields, including individual speech as cognitive reflection of the personality and mass communication, in which personality and societies are involved (Cutler 2005). For reasons that are mentioned above and from Vygotsky's perspective, we propose psycholinguistic experiment for revealing the main peculiarities of social categorization by Ukrainian and American students. These peculiarities demonstrate the culture effects on students cognition mediated by Ukrainian and English languages.

The study

Procedure of psycholinguistic experiment contains a number of stages, each of them having its own aim:

1. To compare social schemes as basis for social categorization (personal schemes, action schemes, self-schemes, role schemes, function schemes) in word meanings for words denoting social objects suggested by Ukrainian (n=25, 12 female and 13 male, mean age 21,7±3,0 years, Lesya Ukrainka Eastern European National University, Lutsk) and American (n=25, 15 female and 10 male, mean age 22,4±3,0 years, University of Central Arkansas, Conway, USA) students as Slavonic and Germanic language speakers.

2. To establish culture effect on cognition and language in word meanings based on the phenomenon of social categorization and as result suggested social schemes.

All students were proposed to give word meaning definitions of the concepts denoting social objects, considering their own knowledge and experience. The instruction was "Please give word meaning definition for the suggested concepts according to your own experience and knowledge". All the words express concepts connected with different fragments of social world, in other words, they activate social categorization. Here is the list of those words: *bicycle, life, feelings, friendship, art, telephone, sea, murder, time*. The instruction and list of words for American students were in English, for Ukrainian students they were in Ukrainian.

Table 1 illustrates a "Street" definition mediated by social categorization:

Table 1

Psycholinguistic peculiarities of social categorization of concept "street" represented by Ukrainian and American students

Definition	Social category (scheme)
It exists to help people to be oriented in the place	Function scheme
Place for walking	Action scheme
Way I am walking	Self-scheme
Place when people can observe everything and think over it	Personal scheme
Place where students can meet and speak	Role scheme

Some more examples for word meanings comprising different social categories (schemes) are given here: self-scheme – *street is way, to get me from one location to another by foot or car; what I drive down to get to college*; function scheme – *an area mostly used for transportation, a paved path that is used for travel*; action scheme – *a paved stretch of land on which a person drives somewhere; life is what happens between birth and death; when you live and breathe; art as act of creating; murder as taking the life of another person; when a person kills another person; telephone as interaction with somebody; time as aspect that tells you what to do; feeling as how you react to something*.

The answers represented by Ukrainian and American students differ in their abstract and concrete character. The answers of Ukrainian students are more abstract and often involve their knowledge. The answers of American students are predominantly concrete and are based on their own experience. Below are the examples of word meaning definitions based on social categories for interpreting concept “feelings”.

Table 2

**Psycholinguistic peculiarities of social categorization of concept “feelings”
represented by Ukrainian and American students**

#	Word meanings suggested by Ukrainian students	Social categories (schemes for social categorization) by Ukrainian students	Word meanings suggested by American students	Social categories (schemes for social categorization) by American students
1	Sprynyattya podraznykiv dovkillya [Perception of stimuli of environment]	Action scheme	What I experience on a regular basis towards things	Self- scheme
2	Proyav lyubovi/ nenavisti do predmeta [Display of love/hatred to subject]	Personal scheme	How much one likes or dislikes something or situation	Personal scheme
3	Posytyvne/negatyvne vidchuttya, vlastyve kozhniy liudyni [Positive/ negative feelings, inherent in every human being]	Personal scheme	My unsaid opinion	Self-scheme
4	Vyrazhennya konkretnoyi emotsiyi [Display of concrete emotion]	Action scheme	Power of my perceiving	Self-scheme I scheme
5	Pevne stavlennya do kohos' [The attitude towards somebody]	Action scheme	Emotions toward something	Personal scheme
6	Stan liudyny [State of person]	Personal scheme	The outcome of situation	Function scheme
7	Potiah do inshoyi liudyny [Inclination towards other person]	Action scheme	A sensation that occurs within the body	Personal scheme
8	Osoblyvyi sposib vyrazhennya emotsiy [Peculiar way of emotion expression]	Action scheme	The way I feel	Self-scheme
9	Vlastivist rozumity i otsiniuvaty [The ability to understand and evaluate something]	Action scheme	How I react to something	Self-scheme

The predominant word meanings of Ukrainian students for concept “feeling” are based on action scheme and express general acts of emotional display or concrete attitude towards something. On the contrary, word meanings for suggested words in American students’ answers represent categorization of the social objects according to their own experience and self-scheme.

Table 3

Indices of cross-cultural peculiarities of social categorization represented by Ukrainian and American students

#	Social category	Mean indices of frequency of the category among American students	Mean indices of frequency of the category among Ukrainian students
1.	Self-scheme	85,00	90,00**
2.	Action scheme	75,00	95,00**
3.	Role scheme	10,00	35,00***
4.	Function scheme	60,00	45,00*
5.	Personal scheme	16,00	12,00*

* $p < 0,05$, ** $p < 0,01$, *** $p < 0,001$

Discussion

All schemes as essential properties for social categorization are represented in the answers of Ukrainian and American students. Among them the most frequent for both cultures are self-scheme, action scheme and function scheme. This fact reveals the common universal mechanisms of cognitive nature which allow grouping objects with logical operations based rather on inborn human cognition than culture impact. The cognitive mechanisms are connected with subject of categorization (self-scheme), his/her actions (action scheme) and functions of objects (function scheme). The function scheme allows improving practical and mental actions towards objects of physical and social world. It is in line with theory of essential concepts, represented by objects/subjects and actions connected with them (Jackendoff 2007).

The results of cross-cultural study indicate that main cognitive operations of grouping social objects are connected with subjects and his/her actions over objects based on their main functions. Therefore the center of human conceptual system is expressed by self-scheme and main actions based on corresponding functions of the social objects. This fact is in line with experimental research of mental lexicon structure in English language, the center of which is expressed by concepts Me and Man (Kiss et al. 1972).

The results of the comparative analysis of word meanings based on social categories (schemes) of Ukrainian and American students show that the most frequent social categories among American students are self-schemes, which are connected with individualism of national character of western-cultured people. The most frequent social categories among Ukrainian students are action schemes which

express pragmatic character of Ukrainian culture. The significant differences are also observed in personal schemes which are connected with self- schemes of American students. The Ukrainian word meanings are mediated by role schemes which are peculiar for their social categorization. This fact shows the important role of different social roles for Ukrainian students. The predominant part of role schemes in Ukrainian answers coincides with family role (e.g. daughter, son, sister, brother) which is related to gentility of Ukrainian culture.

Conclusions

The results of the psycholinguistic experiment of word meaning definitions based on social schemes by American and Ukrainian students show some common schemes for both cultures. This fact proves the existence of universal cognitive mechanisms of social categorization that are determined by evolutionary and historical development of humankind. Among the schemes being common for both cultures are self-schemes, action schemes and function schemes. Despite the existence of the universal schemes, the degree of their expression in word meanings offered by American and Ukrainian students varies. Whereas the most important schemes for social categorization of Ukrainian students are action schemes and role schemes, the major schemes for American students are self-schemes and personal schemes. In our opinion, this is associated with the fact that culture as socially shared information coded in symbols has a strong impact on cognition and language in general, and on all cognitive processes, in particular. Thus categorization as a cognitive process is mediated by culture and language of the Ukrainian and American students, revealing the universal cognitive and discursive character of human cognition. Moreover, categorization as a cognitive process has general universal cognitive mechanisms, which are specific for any person, and is represented in similar schemes of the Ukrainian and American students, such as: self-schemes, action schemes, function schemes, role schemes. This finding is the important conceptual base for the cognitive scientific paradigm.

Social categorization as a discursive process is determined by cultural and nationally specific phenomena. It is manifested in the schemes with different degree of their expression in Ukrainian and English. This idea is fundamental for discursive scientific paradigm, since it demonstrates the culture effect on cognition and language.

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