

The conceptualization of gender in English: an experimental perspective

The research of gender differences through and in language as one system of communication has been and is widely being explored by linguists and sociolinguists. Our language and society reflect one another, so it is important for us as communicators to recognize and respect change in the meaning and acceptability of words.

Sociolinguists attempt to isolate the linguistic features used in particular situations that mark the various social relationships among the participants and the significant elements of the situation. Factors influencing the choice of sounds, grammatical elements, and vocabulary may include age, gender, education, ethnic identity, occupation, and peer-group identification" [22].

Psycholinguistic view on the relation between language and mind, while investigating brain structure, solves the problems of language impairments and sociolinguistic approach can help to understand the place of gender category in that relation.

As "functional magnetic resonance imaging" ("fMRI") scanning grows ever more sophisticated, neuroscientists keep refining their search for male-female brain asymmetry. So, in the last fifteen years, fMRI has allowed scientists to explore whether gender peculiarities of the brain could explain already revealed properties in language abilities of women and men. fMRI allows scientists to measure blood flow in the brain during behavioral tasks, mapping certain patterns between the brain reaction to various activities. The demonstration of such differences does not prove that they are innate; rather, the activity of the brain is shaped by our experiences as well as our innate brain structure.

Using psycholinguistic approach we observe current evidences about brain and language correlation from the findings associated with the pathological circumstances (which are generally accepted and regarded as consistent and reliable) compared with studies of healthy individuals. In the second part the category of gender is analyzed from a sociolinguistic perspective. In the last section we try to conclude the whole research and emphasize main ideas.

Brain-damaged patients show that men's and women's speech is impaired differently when trauma happens to the same areas [16].

The differences suggest that women process speech more on the right side of the brain than do men. Women show less impairment of speech than men, overall, when the left side of the brain is traumatized, i.e. greater involvement of both hemispheres in language processing and less hemispheric specialization of cognitive functions than for men [18: 4].

D. Kimura (1983) studies "incidence of aphasia and apraxia on 216 right-handed patients with unilateral lesions of the left cerebral hemisphere, and on a subgroup of 81 patients with damage restricted to anterior or posterior regions" [p. 19]. He states that "aphasia was proportionally more frequent in males than in females, but this difference was significant only in the larger sample"

[p. 19]). Moreover, the pattern of speech representation differed between the sexes. D. Kimura (1983) argues that "speech disorders and manual apraxia occurred in women more often from damage to the anterior part of the left hemisphere than from posterior damage" [p. 19]. But as the author notes "this was not true for men" [p. 19] and continues that "in 169 patients with unilateral right-hemisphere damage the incidence of aphasia was extremely low and did not differentiate the sexes [p. 19]. The scientists implicates "that there are sex differences in the organization of speech and praxis within the left hemisphere, and that speech is not simply more bilaterally organized in women than in men" [12]. The research presents clear results with a good sample size and gives the types of injuries which are general damage, lesions, tumor, vascular system tumor, aphasic (posterior and anterior), apraxia and even controls for level of severity of damages. We think that people with slight damages of head would process the same tasks much differently from people with heavy brain injuries.

Douglas D. Burman clarifies the situation on the issues in the article "Gender Differences in Language Abilities: Evidence from Brain Imaging". Based on Kimura, D., Howell, P., Berninger, V. W. et al. studies of gender language abilities he argues that, for instance, the following differences have been found:

- Girls begin to talk sooner and more clearly than boys.
- The average 20-month old girl has twice the vocabulary of the average 20-month old boy.
- Boys are much more likely to be diagnosed with stuttering and handwriting.
- There are no gender differences in vocabulary knowledge, but females tend to have more advanced spelling and grammar skills [3].

These observed differences have led to many questions. Are these language differences innate or are they due to social factors? If boys and girls have difference language skills, should they be schooled separately in single-sex classes?

New research by Burman et al. demonstrates a biological mechanism for why girls show better language abilities than boys. It shows that young girls may learn language more completely than their male peers [23]. The scientists test a group of children (31 boys and 31 girls, ranging in age from nine to 15) using fMRI while the children are given language tasks in which two words are either flashed in front of, or spoken to them; and they have to identify whether the pair is spelled similarly (omitting the first consonant, as in "pine" and "line") and whether the words rhyme, such as "gate" and "hate" or "pint" and "mint." Some pairs fit neither criterion, such as: "jazz" and "list". Swaminathan comments that "researchers report that the answer lies in the way words are processed: girls completing a linguistic abilities task showed greater activity in brain areas implicated specifically in language encoding, which decipher information abstractly. Boys,

on the other hand, showed a lot of activity in regions tied to visual and auditory functions, depending on the way the words were presented during the exercise” [23].

She concludes that while processing the language males utilize sensory machinery more to decode the information and advises that “in a classroom setting... boys need to be taught language both visually (with a textbook) and orally (through a lecture) to get a full grasp of the subject, whereas a girl may be able to pick up the concepts by either method” [23].

Study co-author D. Burman, a research associate in Northwestern University’s communication sciences and disorders department, says the team saw greater activity in the so-called language areas of the girls’ brains than in those of the boys. The areas included the superior temporal gyrus (implicated in decoding heard words), inferior frontal gyrus (speech processing), and the fusiform gyrus, which helps spell and determine the meaning of words. Activation of the latter two structures, in particular, seemed to correlate with the girls’ greater language accuracy [23].

“For girls, it didn’t matter if they heard the word or read the word,” Burman says. “It does suggest that girls are learning [language attributes] in a more abstract form, and that’s the ideal objective when we’re teaching things” [23].

D. Burman says that they should remember that there is much overlap in language skills among boys and girls, and that overall differences in language skills are small. He adds that their findings of gender differences in the brain would better serve to remind us that not all children process information the same, and that an effective education depends on tailoring the teaching (and testing) methods to the strengths and weaknesses of each child [23].

B.A. Shaywitz et al. in their research in *Nature Journal* discuss the functional organization of the brain for language of different sexes. A long-held hypothesis posits that language functions are more likely to be highly lateralized in males and to be represented in both cerebral hemispheres in females, but attempts to demonstrate this have been inconclusive. In this article they use echo-planar functional magnetic resonance imaging to study 38 right-handed subjects (19 males and 19 females) during orthographic (letter recognition), phonological (rhyme) and semantic (semantic category) tasks. During phonological tasks, brain activation in males is lateralized to the left inferior frontal gyrus regions; in females the pattern of activation is very different, engaging more diffuse neural systems that involve both the left and right inferior frontal gyrus. The data provide evidences for a sex difference in the functional organization of the brain for language and indicate that these variations exist at the level of phonological processing [21].

A.M. Clements et al. (2006) argue that “sex differences on language and visuospatial tasks are of great interest, with differences in hemispheric laterality hypothesized to exist between males and females” [p. 150]. They prove that “some functional imaging studies examining sex differences have shown that males are more left lateralized on language tasks and females are more right lateralized on visuospatial tasks” [5: 150], the team also notes this is not consistent. The scholars use fMRI to record the data from thirty participants who perform pho-

nological and visuospatial tasks. As they are interested in testing differences in cerebral laterality each the method of “region-of-interest analyses” [5: 150] are taken for every task; they use “both methodologies: whole brain or region of interest analyses to look for overall differences in activation patterns” [p. 157]. Their implications say that “lateralization differences exist, with males more left lateralized during the phonological task and showing greater bilateral activity during the visuospatial task, whereas females show greater bilateral activity during the phonological task and are more right lateralized during the visuospatial task” [5: 150]. The scientists note that although their findings show significant sex discrepancies for both tasks there are some studies where on the same language or visuospatial processing tasks participants demonstrate no sex differences.

The experiment by Clements et al. (2006) can be characterized as a complex research with clearly illustrated methodology. And, in our opinion, the lacking information about the socio-economic background of subjects and an attempt to test the widespread views do not negatively describe the implications of the study.

Cheryl L. Garn, Mark D. Allen and James D. Larsen (2009) present a neuroimaging experiment that examines whether males and females use distinct brain systems while performing a confrontational naming task, with specific attention to the possibility of laterality differences. The scholars test “whether sex-based differences in functional brain organization might interact with object category distinctions” on 26 participants (13 males and 13 females) using fMRI taking into account that “previous behavioral studies have shown some consistent processing differences between the sexes with respect to tools versus plants” [4]. As the team concludes: “Main effect and interaction analyses reveal no discernable laterality differences between the sexes” [4]. But the scientists claim that consistently with other previous object-naming studies their research shows that “global effects revealed dominant foci in fusiform gyrus, left posterior middle temporal gyrus, left basal ganglia/thalamus, left middle/inferior frontal gyri, left frontal operculum, left supplementary motor area/dorsal anterior cingulate, and left pre-central gyrus” and “men and women showed no discernable activation differences, hemispheric or otherwise, when collapsed across object categories, sex-by-category analyses showed selective activation for females in dorsal anterior cingulate gyrus and left posterior middle temporal gyrus for tools, and selective activation for males in left posterior middle temporal gyrus for plants [4]. This research presents new facts about how men’s and women’s brain reflect objects which belong to different semantic categories: tools vs. plants. The results show that males and females differently process objects of the reality. This provokes some questions, such as: Does it happen because of various education levels of subjects or due to associations participants have when they are shown these objects? For future research we would try to control for this, using fMRI, by, first, giving them sentence to read about this object and then showing them the picture of the object. We think that the semantic priming they would have while reading the sentence (mainly definitions of objects) will not let their cognitive abilities distract their mind too aside from the objective reality.

Another group of scientists including R.C. Gur, D. Alsop, D. Glahn, R. Petty, C.L. Swanson, J.A. Maldjian, B.I. Turetsky, J.A. Detre, J. Gee, R.E. Gur (2000) claim that sex differences in cognitive performance have been documented and women performing better on some phonological tasks and men on spatial tasks. An earlier fMRI study suggested sex differences in distributed brain activation during phonological processing, with bilateral activation seen in women while men showed primarily left-lateralized activation. fMRI study examined sex differences (14 men, 13 women) in activation for a spatial task (judgment of line orientation) compared to a verbal-reasoning task (analogies) that does not typically show sex differences. Scientists also control for the difficulty of tasks. The study concludes that women are “more left lateralized for the verbal and more right for the spatial tasks, but men also showed some left activation for the spatial task, which was not seen in women” [10]. The scientists propose that “failure to activate the appropriate hemisphere in regions directly involved in task performance may explain certain sex differences in performance and, for a spatial task, the principle that bilateral activation in a distributed cognitive system underlies sex differences in performance [10]. This research presents sufficient information about the differences in women and men language processing abilities. But, of course, various outcomes can be found out if the type of tasks would be changed and subjects with opposite background would be chosen, and what would be the results if we could test the same tasks with people studying English as a second language or test the same theory on people with other languages.

J. Harasty, K.L. Double, G.M. Halliday, J.J. Kril, D.A. McRitchie (1997) argue that “many studies have demonstrated significant sexual dimorphism in verbal ability”. The scientists focus on examining “anatomical differences between the sexes that may underlie such dimorphism” [11]. They provided an experiment and suggest that “females have proportionally larger Wernicke and Broca language associated regions compared with males”. And the team supposes that “these anatomical differences may correlate with superior language skills previously demonstrated in females” [11]. The fact that women have larger Wernicke and Broca areas is supported also by Renato M.E. Sabbatini. He argues that it “provides a biological reason for women’s notorious superiority in language-associated thoughts” [20].

M. Besson, C. Magne & D. Schön (2002) studied sex differences in sensitivity to speech melody in terms of emotional prosody. The latter is defined as “the ability to express emotions through variations of different parameters of human speech, such as pitch contour, intensity and duration” [p. 405]. They discover “clear differences between men and women in the time course of emotional prosodic processing” [p. 405]. The researchers argue that “most prosodic systems offer distinctive intonation patterns for questions and declarations (rising versus lowering of pitch contour at the end of the utterance). Prosody allows communication of both linguistic and emotional intentions at the same time and carries important information related to the sex, age and emotional state of the speaker. Research into the encoding of emotional states in speech signals shows clear correlation with global properties, such as loudness, speech rate and

pitch contour” [p. 405]. M. Besson et al. use objective acoustic measures, such as the harmonics-to-noise ratio and the event-related brain potentials (ERPs) method to explore the specific acoustic features of emotional speech using.

M. Besson, C. Magne and D. Schön (2002) discuss the ERP method used by Schirmer et al. to study the time course of the relationship between emotional prosody and word recognition. They claim: “the novelty in their approach is their comparison between men and women” [p. 405]. As researchers state: “the participants listened to semantically neutral German sentences (e.g. ‘Yesterday she had her final exam’) spoken with either a happy or sad intonation” where “a semantically related target word with positive or negative valence (‘success’ or ‘failure’, respectively) was presented visually after each spoken sentence” [1: 1]. The target words either matched or did not match with the emotional sentence prosody (e.g. ‘success’ or ‘failure’ following the sentence: ‘yesterday she had her final exam’, spoken with a happy intonation). In addition, participants performed a lexical decision task (LDT) while their EEG was recorded from 58 scalp electrodes. The results demonstrate significant differences between men and women in the processing of emotional congruence. When the time interval between the spoken sentences and the visual targets is short (200 ms), women respond faster to matching targets, than to targets that do not match the sentence prosody. Moreover, the N400 component of the ERPs, which is known to reflect word expectancy, is smaller for targets that match compared with those that do not match the sentence prosody. The results indicate that women base their linguistic expectations on emotional prosody as early as 150 ms following visual target onset. By contrast, men do not show any electrophysiological priming effect, but respond faster to positive target words than negative target words, indicating that men process word meaning independently of sentence emotional prosody. Results of a second experiment enabled Schirmer et al. to establish that men are sensitive to emotional prosody, but they are slower than women to process it [1]. This research proves the fact that female and male language usage differences can be explained with help of investigation of brain structures and processes. It leads us to the impetus of developing the existing techniques and testing subjects of different nationalities and backgrounds.

Sociolinguistic perspective at gender category presents another side of the problem. The outcome of the applied experiments enable us to get new look at the problem of gender in language and find some common things with the previous methodology.

In the fifth century BC, according to Aristotle’s account, Protagoras first created the labels masculine, feminine, and neuter for Greek nouns, and language scholars have been trying to explain the relationship of grammatical gender categories to the world around them ever since [6: 11].

According to most grammarians, the category of gender found in Old English and in other Germanic languages, gradually disappeared from English and replaced by a system where the gender of nouns and the use of personal pronouns depend on the natural gender of the referent. But the problem with inanimate objects is not still absolutely clear. Following this idea this paper examines

the gender category from the field of semantics. Thus, this paper presents the actualization of gender frames on the basis of certain communities of practice and modern classical books and magazines.

Frame theory helps us to better understand the phenomena structures, look at the roots and prophesy the possible outcomes [17].

The working hypothesis consists of the idea of referring to the inanimate world to describe objects using third person singular pronouns 'he/she' which are the indicators of animacy. And when we do that we usually personify the inanimate objects and divide them into female or male and refer by 'she/he' pronouns. So, we propose that the problem of marked gender relations lays in the intersection of several disciplines such as linguistics, anthropology, sociology, psychology, cognitive science etc. And our suggestion is that it is closely related to understanding of the processes of consciousness. We offer to address the processes of cognitive science to make clear the gender status in the English language because mainly it is the issue of our mind that is reflected in the language and back the language impact on our mind. Every day, while reflecting the objective world with our eyes, hearing and other senses, our mind categorizes the information, and then it is conceptualized and categorized in certain clusters of objects. These two processes of categorization and conceptualization help us to adequately exist in this complex and still not fully researched and understood world with the harmony of the nature. By harmony we mean the reasonability of the world structure that is created for human beings. Scientists want to understand the structure of this planet they should first focus on two main creatures: female and male. The combination of the two sexes gives birth to further continuing of humanity. Also, we suggest that scientists should widely use the gender frame approach. Going back to the connection between language and mind we can assume that these processes are mutually evoked. By language, as it was explained by Ferdinand de Saussure we understand the system of signs and symbols which can be represented in our mind by numerous variations. So, if a person is a deaf and mute from birth it does not mean that she/he does not use language. Of course, she/he cannot use the language to see and utilize but in their minds there is a certain algorithm of signs that is built up through the process of socialization and helps us to communicate. And that is the way every animate object in our world exists, using a certain set of signs. From ancient civilizations till modern days people have reached great results in all fields of life. At the same time people managed to destroy many important things which could be highly useful for further discoveries.

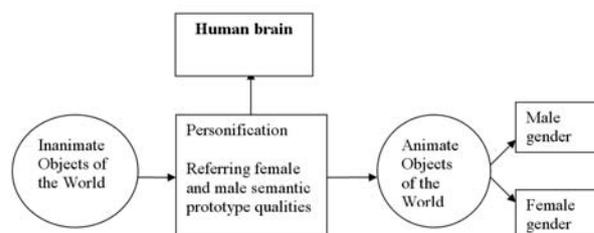
We also have to speak about the relation between the prototype theory and gender. Main ideas of prototype phenomenon have been clearly explained by W. Labov (1973), E.H. Rosch (1978), G. Lakoff (1980), et al.

The research supports the proposed theory of correlation between gender and semantics. The basis of the category of gender can be related to a characteristic of descriptive prototype which is based on certain criteria. Such as, the neutralization of gender relations under the influence of noun semantics: a noun – it; and on the other hand, here, the markedness of gender relations may take place, exactly, the prototype declination: a noun – he /

her. In this case the noun semantics (inanimate subject) comes into contradiction with the meaning of the category of gender. Referring to world categorization characteristics through gender features shows the necessity to study the dynamics of the category of gender development.

Schematically the hypothesis can be represented like this (our own product):

Figure 1



The paper demonstrates connections and processes of the gender category. Why do people personify inanimate objects? And based on what qualities people do it? How does the process of personification affect the category of gender? And why can we, finally, refer to animated words as female or male?

We provided the experiment in the class of sociolinguistics with the students of third level. Number of surveyed: 16 females, 9 males, age 19-23 years old students.

First, we handed around the class papers with two terms, femininity and masculinity, and asked students to write all associations that pop up in their minds in 3 minutes, at the same time we did not limit them either in their choice of a part of the speech or in the number of words. Second, we asked the class to write down any inanimate objects in their possession that they refer to as 'she/he' and try to explain such behavior (5 minutes). Third, we handed out to them papers with inanimate gender marked nouns which we collected through classical literature reading.

Let us focus first on *Table M1*. There were counted 63 words: nouns and adjectives (73% and 27% respectively). The type of these nouns is important for the proposed theory. So, concrete nouns: 52 % (33 words) (e.g.: blanket, dolls, dress). Among them: animate and inanimate nouns, 14 % and 54 % (9 and 54 words respectively). For the next step we divided them according to their sex: female – 5, male – 2. These results are from the table M1 where **the male students wrote their associations with the notion 'masculinity'**.

The main targets of our analysis here are to focus on the moment of correlation of notions 'masculinity', 'femininity' and 'gender' as mental representations in the males' heads of this class. As a result, we found out:

- **Female** animate nouns: **femme, girl, sister, wife, woman**. We need these data in order further to compare them with the qualities females possess and how they relate to the personified objects.

- **Male** persons of this class associate masculine nouns **boy and gay** with 'femininity'. This moment is interesting for us because later we will try to correlate the qualities of males and females with the purpose to find common ground and discrepancies.

- 5 % of animate nouns are of animal and insects

categories: butterfly and cat. These results will also enable us to compare females and males with animal world in order to distinguish some basic qualities of sexes.

The same schema I used with the data on the notion 'masculinity'.

Results:

- Male persons of this class did not associate women with 'masculinity';

- Male nouns: **brother, butch, father, dude, jock, jockey, man, soldier, stoic.**

Table M2. These results are from the table where we asked the students of the class to indicate any inanimate objects they ever possessed and which they ever called by 'he/she', i.e. personified them referring to semantic prototype categories of female or male.

From this table we have received the following interesting results.

- **Inanimate objects are personified** according to the **semantic inherent categories** of 'femininity' and 'masculinity' in Table M1;

- The noun '**sword**' associated with 'masculinity' in Table M1 here finds its place with association of **females**. Probably it happens due to the different mental presentations of a referent of a 'sword' which are used by students in the process of personifying.

- Concrete noun '**car**' is associated both with **females** (three times) and **males** (one time);

- Concrete noun '**hookah**' which is inanimate is referred to '**she**' (third singular pronoun that is coherent to feminine gender). It is done so due to the qualities the subject refers to it: **my baby**, very **beautiful** design, very **fragile, glass**. These verbalizations of the subject's semantic prototypical category of 'femininity' are the proof of the correlation between sociolinguistic gender and grammatical gender. This correlation allows us to argue that in the English language Grammar the category of gender is semantic by its nature. And this correlation of an object with its semantic gender occurs due to a referent to which the speaker applies the gender. When he sees the 'hookah' a referent of it is reflected in his mind with form and content, he knows that it is inanimate and it does not have any sex but in his mind due to a certain set of semantic prototypical categories of male and female which he has been acquiring since his birth allow him to refer to it as an animate object.

Results from the Table M2:

- The following collocations 'big baseball bat', 'biggest golf club', 'powerful water gun' are associated with masculine gender because these objects have got 'power', 'serious power', 'masculating to use'. Now let us turn to the *Table M3* the students were given the list of the most frequent qualities of males or females from the classical literature. Then, the subjects were offered to write down the qualities (expressed in any part of a speech) they think refer to females and males. The third table presents the right to existence of my theory.

This table presents the subjects' semantic prototype categories of 'femininity' and 'masculinity' represented in their mind and which are reflected in the language faculty.

Here we can describe the real picture of the English language world for the male persons of the class.

Femininity – cleanliness, beauty, fragility, liberty, passivity, reproduction.

Masculinity – large sizes, aggressiveness, authority, power, courage.

Now, let us turn to the analysis of the female survey.

Table F1. 82 words counted describing 'femininity'.

Here again we are trying to find more frequent and prominent cases of 'masculinity' 'femininity' and 'gender' interaction in terms of mental presentations by the students of the class.

Key findings:

- Females associate themselves more with concrete notions and ideas. This fact may lead us to the idea that females of the class have better developed imagination and are more prone to personify inanimate objects.

- Compared to male persons of the class girls describing '**femininity**' used three times fewer gendered nouns, no association with males and five feminine nouns: **blonde, business woman, girl, mother, women;**

- If males of the class associate '**femininity**' with animals, insects, so females do not. But there is one word from the class of flora: **flower** (10 times). For centuries, the symbol of flower has been a representation of beauty, fragility and for this reason people have used to refer flowers with women.

- The theory of prototype categories affords us to show the central bodies of given associations and notions. Based on these bodies we can get the current picture of mental representations of individuals of the given society. I tried to expose the following main bodies of the notion '**femininity**': **beauty, cleanliness, emotional, fragile, maternity, productivity, love.**

Now, let us look at the results about females' associations of 'masculinity' where I counted 95 words.

Given the relation between inanimate objective world and shift to animacy with the help of personification, we are focused on concrete and abstract inanimate nouns (which are possible to acquire gender).

- Left 4% of **females' associations** about '**masculinity**' of animate objects constitute **animals: deer, dogs, horse, wolf;**

- The central bodies of given associations and notions: **active, strong, rude, alcohol bias, sport, breadwinners, power, paternity.**

Table F2. The female students were asked to share their experience and write down inanimate objects they ever possessed which they ever called by 'he/she'.

We analyzed these data as we did with Table M1, and we have received the following results:

- **Inanimate objects are personified** according to the **semantic inherent categories** of 'femininity' and 'masculinity' in Table F1;

- Based on the results 43 % of females refer to their **car** as '**she**'. They explain that it is **important** for them. The same **principle of 'importance'** was exposed when one girl referred to her '**desktop**' and with two examples of **laptops**.

- According to the results we also can assume that the concrete noun '**car**' is associated both with **females** and **males;**

- Females personify laptop and refer to it as 'he' because (according to the explanation of one female student) "if it were 'she' for her it would have made her laptop seem snobby".

• Someone prefers to call her/his laptop 'he' or 'she', guitar gets female name, vibrator is referred as 'she'. Thus, every person first of all, due to closeness or importance of a thing can personify this inanimate object, once it is personified it acquires a sex. Here a person judging by and based on her/his stereotypes, associations which constitute their semantical prototype categories refer it with female or male gender.

The results of the Table F3 where I offered the females of the class to divide given set of words into females, males or neuter with regard to the notions 'females' and 'males' help us to understand basic semantical categories which have great impact on the category of gender. Further we will show the semantical representation of language picture of the world about 'masculinity' and 'femininity'.

The semantic category of 'femininity' can be represented by such central bodies as: **beauty, cleanliness, fertility, liberty, love, luxury, courage, passivity; 'masculinity' – aggressiveness, authority, brave, force, large sizes, dominion, predator, blood, tyranny.** These categories were exposed on the basis of both frequency from the acquired data during the experiment and already found data from the classical literature.

The search for correlation between brain and language research with regard to sex appears to be a complicated task. Some scientists ignore or consider these differences insignificant. This idea was elaborated in the times when technological tools did not allow scientists to assess the real state of things. Nowadays, when we have developed our technology and gained some useful methods for investigating these differences it seems quite obvious that brain structure differences in males and females directly correlate with language acquisition.

Given the two patterns of 'femininity' and 'masculinity' we can argue that the mental representation of these notions is still traditional among the students, at least in the tested class. In spite of the feminist movement and promotion of women's rights males and females tend to associate each other with the same stereotypes which are the foundation of religious traditions.

Of course, the attempts of feminists, who have been trying to change the situation with inequality between sex roles since 1950s, have gained some effect. The situation of women in all spheres changed in better way but the reasonability of the Nature limits the whole shift of sex role changes. And this survey is additional proof to the persistence of Nature laws where men are mostly dominions and women are the keepers of family hearth.

Also, the given research gives answers for the questions posed in Figure 1. People personify inanimate objects of the world due to the importance of those to their lives, due to their emotional state, closeness to something. So, we can propose that females and males automatically start, in the process of personifying inanimate objects, comparing these objects with themselves. They represent these objects in their minds as human beings and according to the qualities, semantic prototypical categories; further these already animated objects are applied the gender.

There are some data on sex differences in the brain structure and processing effects. Scientists argue that brain structure correlates as well or better with psychological "gender" than with simple biological "sex".

Thus, 'individuals' gender traits – their preference for masculine or feminine clothes, careers, hobbies and interpersonal styles – are inevitably shaped more by rearing and experience than is their biological sex [7]; that women have a higher percentage of GM (grey matter), whereas men have a higher percentage of WM (white matter) and of CSF. Such brain anatomy may explain some documented differences in behavior that women perform better than men on verbal and memory tasks, whereas men excel in spatial tasks [9]. Some scholars argue that sex differences in language lateralization may be task-dependent but they do not specify the process [13] or that gender differences in language appear biological and language processing more abstract in girls, more sensory in boys [8].

A. Weatherall and C. Gallois (2003) claim that instead of gender being viewed as an essential characteristic of an individual's psyche, it is understood as a thoroughly social construct, one that is produced by language and discourse. The scientist also supports that the shift from an essentialist to a constructionist view of gender has resulted in new explanations of key problematic issues that have emerged from some aspects of gender and language research [24].

According to M. Bucholtz, discourse is the linguistic level in which sentences are combined into larger units – this definition focuses on linguistic form [2].

Therefore, brain structure and processes should be investigated with regard to persons' abilities to personify inanimate objects. This process starts in the brain and is reflected in the language. It can be assumed that the correlation of the socialization of human beings is related to brain structure differences.

In conclusion, with regard to the issue of localization of language in the brain, we can hypothesize that males and females operate the processes of personification and gender applications in different ways. And maybe these processes could be located in different areas of the brain and differently affect the way of thinking.

Works Cited

1. Besson, M., Magne, C. and D. Schön "Emotional prosody: sex differences in sensitivity to speech melody." *TRENDS in Cognitive Sciences* 6 (10), (2002): 405-407. <<http://www.incm.cnrs-mrs.fr/pdf/BessonetalTICS02.pdf>> (20 March 2011).
2. Bucholtz, Mary "Theories of Discourse as Theories of Gender: Discourse Analysis in Language and Gender Studies." *The Handbook of Language and Gender*. J. Holmes and M. Meyerhoff (eds.). Oxford: Blackwell Publishing Ltd., 2003: 43-69.
3. Burman, Douglas "Gender Differences in Language Abilities: Evidence from Brain Imaging". <http://www.education.com/reference/article/Ref_Gender_Differences/?page=2>. (10 April 2011).
4. Cheryl, L. Garn, Mark D. Allen and James D. Larsen "An fMRI study of sex differences in brain activation during object naming" (2009). *Cortex*, 45 (5), 610-618. Abstract. <<http://www.mendeley.com/research/an-fmri-study-of-sex-differences-in-brain-activation-during-object-naming/>>. (8 February 2011).
5. Clements, A.M., Rimrod, S.L., Abel, J.R., Blankner, J.G., Mostofsky, S.H., Pekar, J.J., Denckla, M.B., Cutting, L.E. "Sex differences in cerebral laterality of language and visuospatial processing" (2006). *Brain and Language*, 98, 150-158. <<http://www.nslc.wustl.edu/courses/bio3411/woolsey/2009/Lecture11/ClementsBrainLang%2706.pdf>>. (17 April 2011).

Creative Innovations & Innovative Creations, 1-2, 2011-2012

6. Curzan, Anna Gender shifts in the History of English. University of Michigan: Cambridge University Press, 2003: 223.
7. Eliot, Lise “Girl Brain, Boy Brain?” Scientific American. (8 September 2009). <<http://www.scientificamerican.com/article.cfm?id=girl-brain-boy-brain>>. (10 January 2011).
8. “Gender differences in language appear biological”. <www.eurekalert.org>. Northwestern University, (3 March 2008). <http://www.eurekalert.org/pub_releases/2008-03/nu-gdi030308.php>. (12 February 2011).
9. Gur, R.C., Turetsky, B.I., Matsui, M., Yan, M., Warren, Bilkner, Hughett, P. and E.R. Gur “Sex Differences in Brain Gray and White Matter in Healthy Young Adults: Correlations with Cognitive Performance”. The Journal of Neuroscience, 19 (10), 1999: 4065-4072. (15 February 2011).
10. Gur, R.C., Alsop, D., Glahn, D., Petty, R., Swanson, C.L., Maldjian, J.A., Turetsky, B.I., Detre, J.A., Gee, J., Gur, R.E. “An fMRI study of sex differences in regional activation to a verbal and a spatial task” (2000). Brain and Language, 74 (2): 157-170. <<http://www.mendeley.com/research/fmri-study-sex-differences-regional-activation-verbal-spatial-task/>>.
11. Harasty, J., Double, K.L., Halliday, G.M., Kril, J.J., McRitchie, D.A. Language-Associated Cortical Regions Are Proportionally Larger in the Female Brain. Arch Neurol., 54(2), 1997: 171-176.
12. Kimura, Doreen “Sex Differences in Cerebral Organization for Speech and Praxic Functions.” Canadian Journal Of Psychology, 37.1, 1983: 19-35. <http://www.sfu.ca/~dkimura/Publications/Kimura%20%281983%29.%20Sex%20differences%20in%20cerebral%20organization%20for%20speech%20and%20praxic%20functions.pdf>. (10 April 2011).
13. Kitazawa, Shigeru and Kenji Kansaku “Sex difference in language lateralization may be task-dependent”. Brain (May 2005), 128 (5): E30. (25 March 2011). <<http://brain.oxfordjournals.org/content/128/5/E30.full>>. (16 March 2011).
14. Labov, William “The boundaries of words and their meanings”. New Ways of Analysing Variation in English. C.-J.N. Bailey and R.W. Shuy (eds.), Washington: Georgetown University Press, 1973: 340-373.
15. Lackoff, George and Mark Johnson Metaphors we live by. Chicago; London: University of Chicago press, 1980.
16. McGlone, Jeannette “Sex differences in functional brain asymmetry: a critical survey” Language, gender, and sex in comparative perspective. Philips, S.U., Steele, S. & Tanz, C. University of Arizona, Cambridge: Cambridge University Press, 1987: 34-86.
17. Minsky, Marvin A. “Framework for Representing”. Frame Conception and Text Understanding. D. Metzger (eds.), Berlin, New York: Walter de Gruyter, 1980: 3-25.
18. Philips, S.U., Steele, S. and C. Tanz Language, gender, and sex in comparative perspective. University of Arizona, Cambridge: Cambridge University Press, 1987: 333.
19. Rosch, H. Eleanor “Principles of Categorization.” Cognition and Categorization. Hillsdale, NJ: Lawrence Erlbaum, 1978: 27-48.
20. Sabbatini, M.E. Renato “Are There Differences between the Brains of Males and Females?” <<http://www.cerebromente.org.br/n11/mente/eisntein/cerebro-homens.html>>. (25 February 2011).
21. Shaywitz, A. Bennet, Sally, E. Shaywitz, Kenneth, R. Pugh, R. Todd Constable, Skudlarski P, Fulbright K. Robert, Bronen A. Richard, Fletcher M. Fletcher, Shankweiler P. Donald, Katz Leonard and C. John Gore “Sex differences in the functional organization of the brain for language.” Nature, 373.6515, 1995: 607-609. <<http://www.haskins.yale.edu/Reprints/HL0954.pdf>>. (12 February 2011).
22. “Sociolinguistics.” <<http://www.answers.com/library/Britannica%20Concise%20Encyclopedia-cid-76554>>. (18 January 2011).
23. Swaminathan, Nikhil “Girl Talk: Are Women Really Better at Language?” American Scientific. (5 March 2008). <<http://www.scientificamerican.com/article.cfm?id=are-women-really-better-with-language>>. (14 March 2011).
24. Weatherall, Ann and Cindy Gallois “Gender and Identity: Representation and Social”. The Handbook of Language and Gender. J. Holmes and M. Meyerhoff (eds.). Blackwell Publishing Ltd., 2003: 487-509.