



## THE ROLE OF BODY AND BRAIN IN LANGUAGE LEARNING AND TEACHING

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### Abstract

The article discusses the role of body and brain in language learning and teaching, gives some opinions about its advantages.

**Keywords:** brain, body, language learning, learning process, improvement, language learner.

### Introduction

The human body is represented point by point in the brain like a map – on so-called somatotopic maps. How much space is allocated to a certain body part also depends on what you do with your body. The sensory impressions from different areas of the body have fixed processing areas in the somatosensory cortex that can be read like a map. The so-called somatotopic maps are extremely flexible and can be changed, for example through regular practice of a musical instrument.

### The Main Part

After amputations, the area that was assigned to the severed body part takes on new tasks. At the same time, there is an imbalance of inhibitory and facilitating mechanisms and stimulus conduction in the cortex. This can also cause phantom pain. The truth can sometimes be ugly. At first glance, the homunculus is no beauty: the body is emaciated. Gigantic hands sit on thin arms and the face is dominated by a tongue and huge lips that protrude far. But the unsightly male illustrates a fundamental truth about the brain: This is what a human would look like if his body parts were as big as the brain areas they control.

Mapped point by point: With modern imaging methods, scientists can watch the brain at work. In such brain scans, the same region always lights up when subjects perform a movement or are touched: a flat strip of the brain that practically extends from one temple to the other temple and is called the sensorimotor cortex. In fact, it's two flat strips right next to each other: the motor cortex, which is responsible for movement, and next to it the sensory cortex, which processes touch and other senses.

But even within these two bark areas there is an order. Moving outwards on the motor cortex from the midline that divides the brain into the two hemispheres, in every





human being the nerve cells that excite the toes come first, then those for the knees, hips, and shoulders. At the end are the areas that control the eyes, lips, tongue and jaw. The sensory cortex is organized in a very similar way. Such an ordered mapping of body areas to specific brain regions is also referred to as somatotopy, the representation of which as somatotopic maps.

The body surface is mapped point by point in the brain. However, it is not the size of the body part that is decisive for the size of the respective areas, but how sensitive it is. "The larger a body part is represented, the more sensitive it is," says Herta Flor, psychologist at the Central Institute for Mental Health in Mannheim. The reason for this: If a large cortical area in the brain is responsible for a body part, the stimuli of this limb, such as the sensitive fingers, can be registered particularly precisely. Body parts with a high receptor density are often also processed in a large cortical area, while the abdomen, for example, which is equipped with only a few receptors, only takes up little space on the somatotopic map. And more nerve cells are assigned to the movable tongue in the motor cortex than to the nose, whose range of motion is limited. What happens in the brain when learning? Are there findings from brain research on how to learn better?

Learning means that behavior changes over time due to environmental conditions. It is said that a memory for recognition or remembering is created or that a habit is formed in behavior. Momentary adjustments, for example because of exertion, or behavioral changes due to maturation or growth, such as voice changes during puberty, are not understood as learning. The brain sometimes learns according to different principles than are usual with AI and in artificial, learning networks. In particular, the mechanisms involved in acquiring knowledge are complicated and will be explained in more detail later in the Declarative Memory chapter.

**A universal neural learning mechanism**

Environmental conditions conducive to learning are described in such a way that the impulse to do something specific is regularly accompanied by a stimulus ("contingency"). This stimulus or just the expectation of this stimulus subsequently favors the corresponding activity impulse. For example, the act of consuming a hard drink can more often be associated with being in good company. Spending time in good company subsequently promotes the impulse to drink alcohol. After sufficient learning experience, just the thought of company can awaken the need for alcohol, especially when such company is missed with regret.

If certain stimuli occur several times, for example when going to one's own place of work, together with impulses for action, for example the desire for a second breakfast, this is referred to as contingency. Contingencies always automatically support





learning processes. Contingencies that are clearly noticeable in a situation are considered to be particularly conducive to learning. They generate excitations that reach a simple attention center, the so-called VTA (ventral tegmental area), and cause the learning input shown in the left figure. Together with a motor area (nucleus accumbens), the VTA forms the "reward center" (see picture below). Learning also requires neuronal groups capable of learning that are capable of linking an impulse to act with a stimulus that occurs regularly but unexpectedly in the situation (startle signal, reward).

Neuropsychology of contextual learning (classical learning)

An example of classical learning is the following effect: Using a straw, a person gently blows some air against another person's eye. This will reflexively close the eye briefly. A ringtone is now switched on briefly during the draft. After a few repetitions, the eyelid twitches when just the ringtone sounds. The unexpected ringing tone leads to various initially insignificant excitation processes via long nerve processes in a densely woven network of the cerebellum. However, the fact that the reflex path for blinking leads to a nerve tract excitation there at the same time causes an enduring reinforcement in a hitherto unused connection between the two tracts.

Neuropsychology of learning from success (operant learning)

An example of operant learning is the following effect: A child plays a complicated computer game in which there are "good" and "bad" moves. A person whom the child trusts sits next to them and observes the chosen moves. Whenever a good move is chosen, the person says "Yes." As a result, the child will choose "good" moves more frequently and more quickly than with a trial and error strategy. Remarkably, learning is particularly good if the "yes" does not follow every "good" move, but only more often. Otherwise, the "yes" would gradually be overheard.

The "yes" triggers an automatic expectation of success, which leads to various initially insignificant excitation processes via long nerve processes in a densely woven network of the basal nuclei in the brain. However, since the actions for the moves are also prepared there, other nerve tracts are stimulated at the same time. This leads to an enduring reinforcement in a hitherto unused connection between two pathways, one of which is important for behavior and the other for the expectation of success.

## Discussion

Humans differ significantly from animals (including monkeys) because they can learn a great deal. Therefore, psychologists are mainly concerned with what people have learned and what a particular person could still learn.





Everyone is well advised to think about their own habits. It is very helpful to be able to assess your own abilities. If you would like to "be different", that is, if you want to develop a new habit, there is no way around doing it. You don't have to keep looking for a reward either. The reward is usually that they make it. Repeated action creates habits that can become "second" nature. Developing good habits is a prerequisite for a happy life.

Why can't a pig ride a bike? That's an old joke question. The answer: because it doesn't have a thumb – for ringing! Apart from such jokes, the thumb leads a rather inconspicuous existence in everyday life. He is considered rather fat and stupid. "Roughly speaking" or "pi times thumb" means roughly estimated.

### **Conclusion**

However, this small part of the body is currently undergoing an unprecedented evolutionary career. British researchers first noticed this ten years ago. They examined the hands of people in nine world cities and discovered that younger people had much stronger and more dexterous thumbs than older people. The researchers saw the intensive use of mobile phones and Gameboys as the reason for this. While older people often still tap letters and symbols with their fingers, young people do it with their thumbs – zack, zack, zack. As a result, muscle mass and dexterity increase.

### **References**

1. Xasanova O. Pedagogical Importance of Mnemotechnics in Increasing The Vocabulary Of Uzbek Language Learners in German Language //Science and Education. – 2021. – T. 1. – С. 1-6.
2. Xasanova O. USING MNEMOTECHNICS IN TEACHING GERMAN ARTICLES FOR UZBEK STUDENTS //European Journal of Research and Reflection in Educational Sciences Vol. – 2019. – T. 7. – №. 12.
3. Хасанова О. К. ВИДЫ МНЕМОНИКИ В ОБУЧЕНИИ НЕМЕЦКОМУ ЯЗЫКУ //Вопросы науки и образования. – 2020. – №. 40 (124).
4. Ismoilova H. Image of Women's Duties in Religious Sources //Pindus Journal of Culture, Literature, and ELT. – 2022. – T. 2. – №. 3. – С. 101-103.
5. Ismoilova H. ALISHER NAVOIY ASARLARIDA AYOLLARNING TASNIFI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIIY JURNALI. – 2022. – T. 2. – №. 10. – С. 422-425.
6. Ismoilova H. ALISHER NAVOIY ASARLARIDA AYOLLARNING TASNIFI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIIY JURNALI. – 2022. – T. 2. – №. 10. – С. 422-425.





7. Himoyat I. THE ROLE OF LITERATURE, ART AND FOREIGN LANGUAGES IN PROMOTING WOMEN'S PARTICIPATION IN SOCIETY //European Journal of Research and Reflection in Educational Sciences Vol. – 2019. – Т. 7. – №. 12.
8. Ismoilova H. Islamic Approaches to the Image of Women //European Multidisciplinary Journal of Modern Science. – 2022. – Т. 5. – С. 541-543.
9. Ismoilova H. A. FARZANDLARNING TARBIYASIDA AYOLLAR O'RNINING IFODALANISHI //BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI. – 2022. – Т. 2. – №. 12. – С. 260-264.
10. Ismoilova H. A. THE IMAGE OF WOMEN IN WESTERN LITERATURE //Oriental renaissance: Innovative, educational, natural and social sciences. – 2021. – Т. 1. – №. Special Issue 2. – С. 256-259.
11. Oxojonovich, A. S., & Usmoilovich, A. Y. (2022). About the Problems of Language Teaching to Little Children. International Journal of Culture and Modernity, 14, 30-34.
12. Abdiloyev, S. O. (2022). Nemis tili darslarida frazeologizmlardan foydalanishning innovatsion usullari. Архив научных исследований, 2(1).
13. Oxojonovich, A. S. (2022). On the General Associative Aspects of Allegoric Symbols. Spanish Journal of Innovation and Integrity, 6, 424-428.
14. Aziz, A., & Shavkat, A. (2022). Aristocrats Sympathetic to Heine. International Journal of Formal Education, 1(10), 40-43.
15. Aziz, A., & Shavkat, A. (2022). Symbol of the Paris of Inspiration. International Journal of Formal Education, 1(11), 17-20.
16. Умаржонова, Г. М., & Абдиллоев, Ш. О. (2022). НЕМИС ВА ЎЗБЕК ТИЛЛАРИДА “HAND”-“ҚЎЛ” КОМПОНЕНТЛИ СОМАТИК ФРАЗЕОЛОГИЗМЛАРИНИНГ СТРУКТУР-ГРАММАТИК ТАҲЛИЛИ. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 2(10), 226-231.
17. Oxojonovich, A. S. (2022). GERMAN PHRASEOLOGICAL UNITS WITH A ZOONYM COMPONENT. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 2(11), 239-244.
18. Sotvaldieva, H. M. (2021). Using proverbs as A lead-In activity in teaching english as A Foreign Language. Asian Journal of Multidimensional Research, 10(11), 159-163.
19. Sotvaldieva, H. M. (2020). ENGLISH PROVERBS AS A MEANS OF EXPRESSING PEOPLE'S WISDOM, SPIRIT AND NATIONAL MENTALITY. Theoretical & Applied Science, (2), 601-604.
20. Musinova, S. H., & Tadjibaevna, M. A. (2021). STRUCTURAL AND SEMANTIC CHARACTERISTICS OF PROVERBS. Евразийский Союз Ученых, (1-4 (82)), 22-25.





21. Sotvoldiyeva, H. M. (2019). STRUCTURAL AND SEMANTIC CHARACTERISTICS OF PROVERBS. *Мировая наука*, (9), 53-56.
22. Сотвалдиева, Х. М., & Дадамирзаева, Н. (2018). Синтаксическая структура английских пословиц. *Молодой ученый*, (44), 306-307.
23. Musinovna, S. H., & Mirxamidovna, M. G. (2022). Paremiological Units in Uzbek, English and Russian. *International Journal of Formal Education*, 1(10), 18-21.
24. Zufarjonovna, J. G. (2022). USING WEB-QUEST TECHNOLOGY IN ENGLISH LESSONS AS FOREIGN LANGUAGE. *INTERNATIONAL JOURNAL OF SOCIAL SCIENCE & INTERDISCIPLINARY RESEARCH* ISSN: 2277-3630 Impact factor: 7.429, 11, 161-164.
25. Ibrokhimovich, S. R., & Mamatojievich, M. A. (2021). TECHNIQUES FOR CREATIVE WRITING. *Web of Scientist: International Scientific Research Journal*, 2(12), 493-496.
26. Ibrokhimovich, S. R., & Yusupovich, I. V. (2021). Professional Communication in the Pedagogical Activity of a Teacher. *European Journal of Life Safety and Stability* (2660-9630), 11, 264-268.
27. Yusupovich, I. V., Pirnazarovich, R. R., & Mamatojiyevich, M. A. (2022). Using Social Forms in German Language Lessons its Benefits. *European Multidisciplinary Journal of Modern Science*, 4, 724-726.
28. Mirxamidovna, M. G. (2022). MAQOL VA MATALLARNING KOMMUNIKATIV XUSUSIYATI. *Eurasian Journal of Social Sciences, Philosophy and Culture*, 2(2), 125-129.
29. Madaminova, G. M. (2020). ON THE QUESTION OF DEFINING THE CONCEPT OF "SLANG". *Мировая наука*, (1), 41-44.
30. Mirxamidovna, M. G., & Musinovna, S. H. (2022). Communicative Characteristics of Proverbs and Languages. *International Journal of Formal Education*, 1(10), 11-17.
31. Мамасолиев, Р. А. (2021). COMMUNICATIVE AND PRAGMATIC FEATURES OF THE TEACHER CONCEPT IN GERMAN AND UZBEK LANGUAGES. *МЕЖДУНАРОДНЫЙ ЖУРНАЛ ЯЗЫКА, ОБРАЗОВАНИЯ, ПЕРЕВОДА*, 4(2).
32. Mamasoliyev, R. (2020). MODERN INNOVATIVE DIRECTIONS OF PEDAGOGICAL EDUCATION DEVELOPMENT. *Теория и практика современной науки*, (6), 16-18.
33. Azimbayevna, D. G., & Vohidovna, X. X. (2021). FEATURES IN THE TRANSLATION OF MEDICAL TERMS. *Galaxy International Interdisciplinary Research Journal*, 9(11), 470-474.





34. Vokhidovna, K. K. Teaching Foreign Languages at Preschools. *International Journal on Integrated Education*, 4(3), 237-239.
35. Zokirov, M. T., & Isomiddinov, F. (2021). About the problems of synchronous and diachronous sociolinguistics. *ISJ Theoretical & Applied Science*, 11(103), 867-871.
36. Zokirov, M. T., & Zokirova, S. M. (2020). About Lexical-semantic Interference in the Speech of Tajiks, Living in Fergana Region of the Republic of Uzbekistan. *International Journal of Pharmaceutical Research*, 12(3), 10-11.
37. Turdaliyevich, Z. M. (2022). YOZUVNING KELIB CHIQUISH TARIXI. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 2(9), 56-62.
38. Turdaliyevich, Z. M., & Muzaffar, M. (2022). INGLIZ TILIDAGI REKLAMA MATNLARIDA ANTROPONIMLAR QO 'LLANISHI XUSUSIDA. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 2(8), 121-124.
39. Turdaliyevich, Z. M. (2022). BADIY NUTQ USLUBINING TARAQQIYOTI. BARQARORLIK VA YETAKCHI TADQIQOTLAR ONLAYN ILMIY JURNALI, 681-685.
40. Zokirov, M., & Isomiddinov, F. (2020). December). About the holes of language language dictionary. In *Konferencii*.
41. Zokirov, M. T. (2007). *Lingvistik interferensiya va uning o'zbek-tojik bilingvizmida namoyon bo'lishi*. Fil. fn ilmiy darajasini olish uchun taqdim etilgan dissertatsiya.
42. Zokirov, M. T., Zokirova, S. M., & Dadabayeva, S. S. (2021). About The Influence Of The Uzbek Language In Rishtan Tajik Dialects Of Ferghana Region. *Turkish Online Journal of Qualitative Inquiry*, 12(4).
43. Умаржонова, Г. М. (2018). Формирование познавательной активности студентов во внеаудиторной работе. *Молодой ученый*, (21), 492-495.
44. Mukhtorovna, U. G. (2022). Somatic Phraseologies with "Hand" – "QO „L" Component, Expressing Diligence in German and Uzbek Languages. *International Journal of Culture and Modernity*, 14, 68-71.
45. Умаржонова, Г. М. (2021). ФРАЗЕОЛОГИЗМЛАРДА "ҚЎЛ" СОМАТИЗМИ "МЕХНАТ ВОСИТАСИ" СИФАТИДА. In *КУЛЬТУРОЛОГИЯ, ИСКУССТВОВЕДЕНИЕ И ФИЛОЛОГИЯ: СОВРЕМЕННЫЕ ВЗГЛЯДЫ И НАУЧНЫЕ ИССЛЕДОВАНИЯ* (pp. 66-70).
46. Умаржонова, Г. М. (2021). On the issues of the study of the functional content of phraseological units with the components "hand" – "қўл" in the contemporary German and Uzbek languages. In *КУЛЬТУРОЛОГИЯ, ИСКУССТВОВЕДЕНИЕ И*



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ИССЛЕДОВАНИЯ(pp. 66-70).

47. Umarjonova, G. (2019). On the issues of the study of the functional content of phraseological units with the components “hand “–“қўл” in the contemporary German and Uzbek languages. Scientific journal of the Fergana State University, 2(4), 145-148.

48. Umarjonova, G. (2022). FUNCTIONAL CONTENT OF PHRASEOLOGICAL UNITS WITH THE COMPONENT “HAND “–“қўл” IN GERMAN AND UZBEK. Oriental Journal of Social Sciences, 2(04), 84-92.

