THE ILLUSION OF INNOVATION IN FOREIGN LANGUAGE TEACHING

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CHET TILLARINI O'QITISHDA INNOVATSIYALAR ILLUZIYASI

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ИЛЛЮЗИЯ ИННОВАЦИИ В ОБУЧЕНИИ ИНОСТРАННЫМ ЯЗЫКАМ

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Abstract. Foreign language learning has been an inextricable part of the human life for hundreds of years. Whether being goaded by matters of diplomacy, economy or culture, people have always faced the need for communication in both their native and "foreign tongues". Modern instructor training courses, however, tend to completely ignore foreign language teaching history thus augmenting the impression that nothing but grammar-translation method existed before the XIX century. We decided to explore the ways foreign languages were taught in the major civilizational centers of the past (Ancient Mesopotamia, Ancient Rome and Ancient Middle East). We have discovered that some of the "innovative" approaches/methods/techniques of the present hark back more than two millennia. It seems that there is indeed nothing new under the sun in the area of foreign language teaching. A possible explanation to his phenomenon is the inherent limitations imposed upon language learning by both anatomical and functional organization of the human brain.
Keywords: foreign language teaching history; innovation; teaching order; active language learning.

Annotatsiya. Chet tillarini o'rganish yuzlab yillar davomida inson hayotining ajralmas qismi bo'lib kelgan. Diplomatik; iqtisodiy yoki madaniy xarakterdagi holatlar sabab bo'lganligidan qat'iy nazar, odamlar doimo o'z ona tilida va "noma'lum tilde" muloqot qilish zarurligiga duch kelishdi. Hozirgi bosqichda chet tillari o'qituvchilari uchun malaka oshirish kurslari ko'pincha o'z tarixini butunlay e'tiborsiz qoldiradi va shu bilan XIX asrgacha grammatika tarjima usulidan boshqa narsa yo'q degan fikrni mustahkamlaydi. Biz qadimgi dunyoning asosiy sivilizatsiya markazlarida chet tillarini o'qitish masalalarini o'rganishga qaror qildik. Biz hozirgi zamonning ba'zi "innovatsion" yondashuvlari/usullari/texnikasi ikki ming yildan ko'proq vaqt oldin paydo bo'lganligini aniqladik. Chet tillarini o'rgatish sohasida haqiqatan ham "quyosh ostida hech qanday yangilik" yo'qdek tuyuladi. Ushbu hodisaning mumkin bo'lgan izohi sifatida biz inson miyasining anatomik va funktsional tashkiloti chet

tilini oʻrganish jarayoniga qoʻyadigan oʻziga xos cheklovlarga ishonamiz.

Kalit soʻzlar: chet tilini oʻqitish tarix; innovatsiya; oʻqitish tartibi; faol til oʻrganish.

Аннотация. Изучение иностранных языков было неотъемлемой частью жизни человека на протяжении сотен лет. Вне зависимости от того, побуждали ли их к этому обстоятельства дипломатического, экономического или культурного характера, люди всегда сталкивались с необходимостью общения как на родном, так и на «неведанном» языке. На современном этапе курсы подготовки преподавателей иностранных языков зачастую полностью игнорируют собственную историю, подкрепляя таким образом представления о том, что до XIX века не существовало ничего, кроме грамматико-переводного метода. Мы решили изучить вопросы обучения иностранным языкам в основных цивилизационных центрах древнего мира. Мы обнаружили, что отдельные из «инновационных» подходов/методов/приемов настоящего уходят корнями в глубину более двух тысячелетий. Кажется, что в области преподавания иностранных языков действительно «ничто не ново под луною». В качестве возможного объяснения данному феномену мы полагаем неотъемлемые ограничения, которые налагает на процесс изучения иностранного языка анатомическая и функциональная организация человеческого мозга.

Ключевые слова: история преподавания иностранных языков; инновация; порядок преподавания; активное изучение языка.

Introduction. Foreign language teaching and learning, united for the present article under the umbrella term of foreign language education (FLE), are as old as humanity itself.

FLE has been an integral part of all major civilizations, yet as a modern enterprise, it does seem to suffer from a major case of professional amnesia making its practitioners ignorant of their past and, consequently, depriving them of any opportunity for a meaningful future.

The "professional amnesia" refers to a complete abandonment of more than two millennia of FLE history in favor of a simplified and a quite perfunctory picture traditionally presented by language teaching departments not only in the Republic of Uzbekistan but also in the United States of America (cf, for instance, "Teach English Now!" online course offered by Arizona State University via Coursera learning platform, available at https://www.coursera.org/specializations/tesol).

The picture itself boils down to the presentations of the grammar-translation approach and subsequent efforts to overcome its extensive classroom usage from the end of the 19 century onwards. Audiolingual method, direct method, natural approach, communicative language teaching, etc. are all presented in such a light as if they were completely unprecedented developments that arose in opposition to the dominant paradigm of the day. Consequently, they are generally dubbed "innovative" methods/approaches.

Aim and tasks. The Research aims to demonstrate the lack of any significant innovation (in the strict sense of the word) in what is erroneously dubbed "modern" FLE methods and approaches by providing the support to the hypothesis that all of them "have been part of the disciplinary discourse for centuries" (26, 42).

The tasks pursued within the framework of the aim set:

• to establish the terminological research base;

• to provide an overview of FLI in the most prominent centers of the world civilizations;

• to draw the parallels (should such be uncovered) between the ancient FLE approaches/methods/techniques and their modern counterparts in order to demonstrate what we mean by "the illusion of innovation" in the latter;

• to propose an explanation of the lack of innovations/cutting -edge technologies in the area of FLI.

Main part. Terminological base of the research. The term "innovation" has seemingly grown to be one of the staple words shaping both the political and academic discourses of the Republic of Uzbekistan.

From the Republican Scientific-Practical Center for the Development of _Innovative_ Methods of Teaching Foreign Languages under Uzbekistan State World Languages University to the Ministry of _Innovative_ Development of the Republic of Uzbekistan, "innovation" and its derivatives are ubiquitous.

Until 20 June 2020, in the Republic of Uzbekistan, there did not exist any formal definition of the term "innovation". This state of affairs entailed several various governmental establishments tasked with some "innovative activities" yet without any way to establish whether a particular development did constitute innovation. There was, consequently, no way to assess the results of their work: anything could have been an innovation if one had chosen to call it so.

The situation did change with the Senate's adoption of the Law of the Republic of Uzbekistan, "On innovative activities", which defines innovation as "a new product/solution either introduced in the civil commerce or utilized for personal needs whose practical application ensures attainment of a major socio-economic effect". This definition lies at the basis of the research conducted, and it is within its framework that we will build our argument.

The sine qua non- element of an innovation/innovative activity, therefore, is _the major socio-economic effect_ that — be it in the shape of profit margin increase, competitor overtaking, leadership position attainment by a particular company, radical production process improvement, qualitative superiority, creativity or progress — must be tangible and measurable.

In order to successfully graft the economy-/business-centered definition of "innovation"/"innovative activities" onto the area of FLI, the latter needs to be conceptualized as the process of utilization of _specific_ resources aimed at the "production" of an action-ready language learner ("the product"). In the framework of such a reconceptualization, a true FLI "innovation" or an "innovative activity" must entail:

• a significant/measurable reduction in the amount of time required for the achievement of the results sought (short-term "action-ready product" creation);

• a significant/measurable improvement in the quality of the results achieved within an established period ("action-ready product" perfection);

• a significant/measurable increase in the number of learners being trained within a certain period without any detriment to the quality of the results achieved ("action-ready product" amount increase);

• a guaranteed achievement of the results sought by every learner within a particular time allocated to language studies ("action-ready product" normalization).

Should the results of an introduction of a particular idea fall beyond the scope outlined, or should they not be measurable by any objective means, such an idea cannot be considered an innovation or an innovative activity.

Consequently, we disagree entirely with the position expressed, for instance, by David Carless, who claims that innovation is "an attempt to bring about educational improvement by doing something which is perceived by implementers as new or different" (7, 1). Such an understanding of innovation dilutes the meaning of the term it purports to define to such an extent that anything one "perceives" to be "new" or "different" (different from what and to what a degree) can be termed "an innovation".

Unfortunately, most FLE practitioners in the Republic of Uzbekistan seem to abide by this definition, dubbing anything they have not tried before "an innovation" in foreign language teaching. It is important to point out that unless all the above mentioned criteria are satisfied (in terms of measurable/significant and durable improvement), nothing one uses in their language teaching practice should be considered "innovation".

As to the meanings of the remaining terms, following M. Anthony (3), "approach", "method" and "technique" shall be taken to designate (despite our being aware of the most recent developments in the area such as those discussed in (8, 2–14) these seem to be the clearest and most intuitive ones):

1. *an approach* is "a set of correlative assumptions dealing with the nature of language and the nature of language teaching and learning" (3, 63);

2. *a method* is "an overall plan for the orderly presentation of the language material, no part of which contradicts and all of which is based upon the selected approach" (3, 65);

3. *a technique* is "a particular trick, stratagem, or contrivance used to accomplish an immediate objective" (3, 66).

Ancient Rome: audiolingual method, teaching culture and Latin for special purposes. The history of the Roman Empire for quite a significant number of years was inextricably connected with the expansion of the Roman borders that entailed conquests of many an ancient state and, as a result, the need for incorporation of the conquered people into the imperial borders.

It can be argued that the language education in the Roman Empire was implemented through three closely interconnected yet separate systems: Greek as a second language (GSL), Latin as a native language (LNL) and Latin as the second language (LSL).

GSL system, at its heart, was not different from the literary-rhetorical curriculum that the Romans borrowed from Greece after its conquest. It consisted of three stages (the pedagogues /elementary stage, the Grammaticus /intermediate stage, and the rhetoric /advanced stage). The principal implementation instruments behind it were Greek slaves and/or private tutors (16, 690–692).

The calque from the literary-rhetorical curriculum with the Greek letters, syllables, words, sentences and texts being replaced with their Latin translations or equivalents was the LNL system. This system comprised the foundation of the functioning of all the public schools of Ancient Rome, focusing "mainly on reading and writing in Latin, as these schools had to cater for the ordinary working population" (6, 165).

The elementary stage in both GSL and LNL systems started with the memorization of the letters comprising the Greek or Latin alphabet. For better retention, there were chants or songs employed. Plato (38) also describes the implementation of specialized tactile exercises to aid the memorization efforts. Such exercises would require a student "following grooves of the letter shapes in a piece of wood, or fingering letters made out of wood or ivory…or tracing letters lightly sketched on waxed tablets" (18, 137). These alphabet drills of the past can still be found all over the world in the earliest stages of learning a novel-writing system.

The exercises in memorizing the alphabet were followed by those aimed at memorizing all the possible syllable combinations in either Greek or Latin language. The principal teaching aid, in this case, was the syllabary borrowed from the Ancient Mesopotamia and providing a list of all possible letter/sound combinations in a language.

The syllabary was the cornerstone of the earliest stages of language education in both Ancient Greece and Ancient Rome (9, 23–24). Dionysius of Halicarnassus wrote that "when we are taught to read, first we learn by heart the names of the letters, then their shapes and their values, then, in the same way, the syllables and their effects, and finally words and their properties" (18, 139).

After the syllabary mastery has been assured, the student will move on to the next part of the elementary stage of language education: learning to read words. This part also included lists of words a student was supposed to master the reading of, with the necessary inclusion of "uncommon or hard to pronounce [words] with a strong emphasis on mythological and other proper names from literary sources" (18, 141), which would also serve as an entry point into the Greek or Roman culture.

The word-reading drills would be followed by reading passages taken from the canon writers (e.g. Homer). Such texts, it should be noted, were not used for comprehensive purposes but rather as material for "pronunciation and phrasing exercises" (18, 142) in order to provide a student with sufficient practice of prosody and speech production.

The principal aims pursued at the elementary stage of GSL and LNL were, therefore:

• to make sure that the connection between a sound and a symbol employed for its designation is automatic and effortless in the mind of the language student;

• to inculcate, following a significant number of phonetic drills with a language instructor acting as the main authority, what was deemed the proper speaking manner for an educated person, something that would eventually serve as the class-distinguishing element: "the boy well trained in syllables will neither spell nor pronounce caelli caellorum, or allius allia alliud with a double –l- as many are accustomed to do, nor will he put two consonants where there should be only one, nor one where there are two" (18, 140);

• to familiarize the students with the basics of Greek or Latin cultural heritage (myths and histories);

• to prepare the student for reading Greek or Latin texts written without word-separating spaces: "the ability to pick out instantly the syllables…from the undifferentiated stream of letters was an essential part of learning to read *scriptio continua*" (18, 140).

The intermediate stage of GSL and LSL dealt primarily with the analysis and parsing of the most important of the people's literary texts. The

student would be instructed in the issues of poetry, mythological and historical allusions, etc. We do not believe it is important to focus on this particular stage since it is not reflected in the modern language classroom.

The initial phase of the ***advanced GSL and LSL training stage*** comprised sets of exercises developed in such a way as to provide the student with the training sufficient for subsequent oral original compositions to be delivered "for an elite audience" (5, 352). There were two major kinds of speeches that the student was to prove his proficiency: the advice given to a great man at a meaningful point of history and a prosecutor/defender speech at a judicial process devoted to a violation of a certain legal provision.

The exercises that were to prepare the student for the ultimate performance within the confines of the abovementioned oral performances/declamations were collectively referred to as progymnasmata ("gymnasmata" — exercises, "pro" — preliminary to). They bridged the intermediate and advanced stages of language training.

There were a total of fourteen different progymnasmata ordered according to the perceived difficulty level: "fable (*mythos — fabula*), narration (*diêgêma — narratio*), anecdote (*chreia — usus*), maxim (*gnôme — sententia*), refutation (*anaskeuê — refutatio*), confirmation (*kataskeuê — confirmatio*), common topics (*koinos topos — locus communis*), encomium (*enkômion — laus*), invective (*progos — vituperatio*), comparison (*synkrisis — comparatio*), speech in character (*êthopoiia — allocutio*), description (*ekphrasis — descriptio*), thesis (*thesis — positio*), and introduction of a law (*eisphora tou nomou — legis latio*)" (13, xxi–xxii), (27, 162).

The first four progymnasmata comprised the initial phase of the advanced training. Among the tasks that the student was trained in were: text rewriting altering the provided forms of verbs or nouns; expansion, compression or synthesis of the texts provided; main idea modification.

A unique system born in Ancient Rome (the Greeks did not see much need for learning foreign languages) was LSL, one of the ancient world's best-described foreign language learning systems.

The system that seems to have stood somewhat apart was LSL. What makes this system unique is its being quite well attested in the written sources of Egypt (the Greek learning system, while well-described in the literary origins — especially in Quintilian — did not leave a significant number of primary materials). The LSL system, therefore, is one of the best-described foreign language systems in the Roman Empire.

The student would enter the LSL classroom with a conscious decision to engage in Latin language learning to pursue a career requiring proficiency (usually an official state position of some kind). Since there were a wide number of careers available for any citizen of Rome proficient in the Latin language, the materials selected for each particular Latin language course would differ (those wishing to serve in the Roman Army did not have to have extensive knowledge of the legal vocabulary and those striving for business dealings in the Western parts of the Empire did not necessarily have to be able to give military commands in Latin).

Consequently, the linguistic component of Latin language studies comprised bilingual glossaries providing (not alphabetically) entries on a wide range of topics, such as foodstuffs, army, "hotels", "restaurants", "public houses", and religion (10, 11). A range of specialized LSL grammars was also available from non-native Latin speakers (e.g. Dositheus's *Ars Grammatica)*.

There were compiled specialized contrastlists to emphasize the most important areas in which Latin and Greek languages differed. Those lists were called "*idiomata*".

Several texts of increasing complexity were created for LSL learners: manuals of conversation, literary texts and legal texts. The student working in the classroom, under the guidance of the instructor (the language authority), would learn vocabulary (using glossaries), grammar (using idiomata) and practice putting the learned information together using those Penguin-readers' predecessors.

The manuals of conversation, the most important of the remaining ones being *Hermeneumata Pseudodositheana*, contained dialogs and phrases to be learned and utilized in the most commonly encountered social situations. They would develop the learner's social and pragmatic competence and there would be few learners moving in their studies well beyond their content — literary and legal texts would be worthy of the attention of only those wishing to pursue their careers at higher official positions. Yet works by Virgil, Cicero, Terence, Juvenal, Sallust and Seneca (10, 15) were studied using a parallel presentation with their literal Greek translations.

The three language teaching systems of Ancient Rome would overshadow any other view on how languages were taught in the minds of Europeans for centuries to come. Moreover, specialized glossaries, topic-organized monolingual and bilingual dictionaries, as well as grammar manuals for non-native speakers have managed to survive millennia and still thrive in the 21 century.

Emergence of error intolerance in fle. Borrowing an expression from Benjamin Franklin, we believe it possible to claim that errors/mistakes (used interchangeably in the present article) are as inevitable in foreign language learning as death and taxes are in real life.

All language learners make mistakes, no matter what language teaching approach/method one would be willing to employ at a particular moment. Nevertheless, all the existing (or relatively differentiated) foreign language teaching approaches/methods can be divided into two groups: those intolerant and tolerant of errors in language production. It behooves us to emphasize that error tolerance is a recent phenomenon and, therefore, is a historical exception rather than a rule. It is generally left unexplained why exactly would adherents of the grammar-translation approach or audio-lingual method be that unaccepting of errors their students make. The answer to this question is quite simple.

The gradual spread of Christianity across the Roman Empire did little to alter either the model or the content of classical education. The Church did not have any plans of establishing its schools. There were no alternatives to the existing system proposed (see the discussion above), and even the canonical texts were left mainly untouched despite their apparentpagan content.

The "marriage" of the Christian faith and the Greco-Roman *paideia* was facilitated by "a remarkable group of philosophically-minded theologians from Cappadocia" (19) that came to be known as "The Cappadocian Fathers". It was the combination of their "intellects shaped by the best pagan oratorical schools…, rhetorical and philosophical expertise" with "theological activities" (36, 254) that allowed them to reconcile Christianity with its pagan forerunners.

Aided in their reconciliation, the Fathers were by the idea long pervading the cultural fabric of the Greco-Roman civilization. That idea was that the art of rhetoric was not the training of a person in the matters of persuasion *per se* but rather that of "ennoblement of their characters and nurturing of their virtue and wisdom" (36, 253). The great poets of classical antiquity, whose texts constituted the foundation of both grammatical and rhetorical training, were consequently perceived as "the embodiment of every conceivable moral goodness" (20). The formation of a person's character was also guaranteed by the difficulties he would have to overcome throughout his rather arduous and arid studies.

However,The highest degree of importance was assigned to the correctness of the forms selected for the expressing one's thoughts and to the appropriateness of such a selection to the situation in which those expressions were to be used.

The errors and slips in one's command of Latin and Greek language were equated with insulting God himself — "it seems better … to pay due to honor to God with the syllable lengthened in the correct way than to shorten them ... God is not to be subjected to Grammar" (20) — and any mingling of the sacred formulae employed in the sacrament would entail the complete invalidation of the latter.

The error-as-an-insult-of-God paradigm would overtly and covertly enter foreign language teaching systems of all European states and persist there is a hidden form even after the religion had lost its original importance in the lives of the general population.

Games as a part of language teaching process. All in all, there did not seem to be a significant number of attempts to make the language classroom more vibrant . Gamesdo not figure in any major language teaching accounts except for a few cases. Thus, Montaigne and Erasmus mention "games resembling draughts and dominoes" (20) used for teaching inflexions. However, Erasmus does oppose the very idea of their application in a classroom. The situation would start changing only with Comenius.

John Amos Comenius (1592–1670), a representative of the Czech educational reform movement, was one of the greatest innovators in medieval and renaissance language teaching and learning practices. He was the one to draw attention to the importance of demonstration and activity in the classroom: "Comenius had little use for static learning in anything" (20, 11).

The basic premises developed by Comenius, such as the use of spoken language alongside objects and actions in teaching the meanings of words and structures (30), would be rediscovered several centuries later by Stephen Krashen and Tracy Terrel. They would combine and hone them under the umbrella of the Natural Approach to language teaching.

It was by Comenius that the first completely well-developed scheme of vocabulary teaching by dint of visual stimuli was developed. In his *Orbis sensualium pictus*, published in 1654, he decided to separate the bulk of the lexical items presented into a number of sections, each of which was accompanied by an illustration placed at the top of the section. The various parts of the illustration were numbered, which assured the correlation between the textual and visual components of the book.

Comenius even provided a detailed account of how his new creation was to be put to practice (20, 17): first, the student would carefully look at the picture provided in the section making sure they are familiar with the

vernacular titles of every element accompanied by a number; then the teacher, should it be practical and possible, would demonstrate them the real thing (thus using the much-debated realia in the language classroom); after that, the student would proceed to copy the illustrations and finally would color them. It was the active learning reigning supreme, for it was important for the teacher to activate as many senses of his students as possible, which still rings true with the modern findings of the cognitive processes underlying second language learning.

Comenius would also advocate using designed games to facilitate language learning and remove the element of tediousness from the language classroom. In all games, there were seven essential elements: movement, spontaneity, social mixing, combined effort, order, ease, and relaxation (20). There was little, if any, an improvement on this idea by modern education, even though much more is now known about their justification in theoretical terms.

Among the novel elements of foreign language education introduced during the middle ages and still practiced in certain language classrooms was also the usage of drama and plays in teaching language skills.

For Greeks and Romans, performing on stage was not considered to be appropriate for members of those classes whose representatives typically had access to educational processes in the first place. The "social ban" on plays in the classroom remained in place until the X th century CE, "when a German abbess, Hroswitha, composed Latin plays for her novices" (20).

The muslim approach to language learning: student-centeredness and demonstration. Besides Latin and Greek, however, the place of honor in the medieval pantheon of the languages of learning was also occupied by Arabic. In fact, the Ancient Greek thought was only preserved due to the immense contribution of Islamic civilization (28), within which the systematic effort of translation of major works of Greek cannon commenced in the Abbasid caliphate, beginning in the second half of the eighth century CE. The Arabic expansion into Spain in 1085 "created a new world view and new learning previously unknown in Europe" (1). It is not surprising, therefore, that knowledge of the Arabic language would soon become as important as knowledge of Latin during the Roman Empire's time. To satisfy this demand, the representatives of the Muslim thought did have their own opinions on how Arabic was to be taught and learned.

Education issues were central for many Arab and Muslim thinkers of the Middle Ages. Thus, Ibn Sahnun (817 – 870 CE) was concerned with the ethical facets of teacher-student relations. He was the author of the first (in the Muslim world) textbook for teachers, where he specifically addresses the actions that elementary school teachers should take in various teaching situations.

Al-Farabi (ca 870 CE – 943 CE), famously referred to as the "second teacher" (Aristotle being the first), can be interpreted as advocating the wide application of demonstration and student-centered teaching as possible (35). In his opinion, the particular method employed by the instructor should depend on the group to be instructed. Avicenna (ca. 970–1037), though largely known for his contribution to medical science, "encouraged teachers to make the classroom joyful for the students" (1, 3).

As to the actual methods of teaching Arabic as a second language, one of the sources on the issue is *The Muqaddimah* (The Introduction) by a Muslim scholar Abdul Rahman Ibn Khaldun, whose content with this particular question in mind was investigated by Antar Abdella and

Abdelbaset Haridy in their "Medieval Muslim thinkers on foreign language pedagogy: the case of Ibn Khaldun". In particular, they differentiate the following ideas as central to Arab language teaching and learning (1):

- content-based instruction (similar to that in the Ancient Mesopotamia, but with the Quran acting in the capacity of the foundational canonical text);

- whole language and language experience approach (application of poetry, authentic text extracts and composition alongside with calligraphy lessons);

- scaffolding as the best teaching technique;

- language as a habit (resulting from repeated action following the example set by the teacher);

- teaching the language as a means of communication, not as a subject proper ("teach the language, not about the language");

- non-native language speakers are better than native ones.

The medieval and Renaissance ideas of language education led to the establishment of the Grammar-Translation method as the leading approach in the sphere. A number of factors might explain its advent and consolidation:

- the gradual attrition in the societal perception of the professional standing of a teacher expressed in the idea that anybody could teach provided he "had a book lay open in front of him" (20);

- the consequent discarding of language proficiency as a sine qua non-requirement for those embarking on a language teaching career.

As a reaction against the Grammar-Translation method, most modern approaches and methods in language education arose. However, there was hardly anything new regarding the techniques used or aims pursued.

Each of the methods proposed (be it CLIL, audiolingual, communicative or any other) has its techniques honed by thousands of years of application. The advent of computers and technology into the language classroom did not change anything/ Still, it simplified the delivery and application of the methods developed in Mesopotamia, Greece, Rome and the Arabian peninsula. We believe that such a situation is due to a certain limits imposed upon our language learning ability by the very biology of our brain.

Foreign language learning biology. Taking into account the data provided in the previous paragraph, one can argue that essentially there has not been any revolutionary change in foreign language teaching practices in more than two thousand years: the modern student will hardly feel much of a shock having found themselves in an Eduba language classroom or Medieval Europe.

There have certainly been a number of evolutionary changes (introduction of realia, replaced with pictures, interactive images/videos on computer/tablet/phone screens). Yet those were not brought into being due to a breakthrough in the science of how languages are best to be learned but rather due to the change in objectives pursued by those involved. In the Eduba system, where the principal object of study was the dead language, there was no need to use role-plays or drama, but it is not difficult to imagine that it would have been used if there had been a need for meaningful communication between the students in the language they had been learning.

This relative paucity of methods and absence of breakthroughs, in our opinion, can be explained by the fact of biological constraints imposed upon any learning by a vast collection of neurons referred to as "the brain".

The brain is "a complex temporally and spatially multiscale structure that gives rise to elaborate molecular, cellular, and neuronal phenomena that together form the physical and biological basis of cognition" (4, 2). Any learning, therefore, is a physiological process that involves either altering existing or establishing novel connections among the nerve cells in the learner's brain. Teaching is "the art of changing the brain" (37, 5) or "a form of medical intervention" (34, 20), i.e. a set of practices aimed at altering a functioning system for its eventual improvement.

The core language modules in the brain include Broca's area of the IFG (Brodmann's areas 44 and 45), Wernicke's area of the superior temporal gyrus (Brodmann's area 22), parts of the middle temporal gyrus, inferior parietal and angular gyri of the parietal lobe (11, 8–11), (12, 1358), (25, 165). They have been found to exhibit unique anatomic characteristics: with respect to their myelination and cytoarchitecture they tend to differ from the neighboring areas (25, 164).

The language modules are found both in the left and right hemispheres, forming ***the brain language network***. None of the core language regions ever functions independently: they constantly interact with one another and concurrently engage certain non-language-specific subcortical structures that serve as a relay between the language network and sensory input/output systems. Consequently, the principal area of investigation for neuroscience at the moment is no longer the functioning of individual brain regions but rather the identification of how those regions work together to produce the results sought. In other words, the focus is on both the "spatial and temporal dynamics of interconnected brain networks" (22, 657).

Neurologically speaking, L2 proficiency can be viewed in terms of the efficacy and efficiency of neurological resource application by a bilingual: the fewer resources are used, the better. Schneiderman and Desmarais (33) conceptualized first language acquisition in terms of neural network maturation, which in most individuals entails the gradual loss of neurocognitive flexibility. They believed that some "talented" language learners possessed ***more flexible*** neural networks allowing them to "avoid processing second language input via cognitive pathways that have been established for handling the first language" (33, 93).

An increase in proficiency is thought to lead to gradual homogenization of originally distinct pathways employed for L1 and L2 processing. In the course of time, the differences between them will become less prominent, which will lead to the increase in proficiency exhibited by the speaker, a view commonly referred to as the "convergence hypothesis" (15).

The pioneering study in anatomical cortical changes entailed by bilingualism was published in Nature in 2004 (24). It focused on simultaneous (participants who learned a European language before the age of 5 and successive (those who learned a European language between the ages of 10 and 15) bilinguals. Bilinguals demonstrated an increased grey matter density in the left IPL localized in the posterior supramarginal gyrus. The increase was found to be directly related to the proficiency attained by the speaker and inversely related to the age of acquisition, i.e. it was highest in those most proficient in their L2, having acquired it at an earlier age (31,

514). This finding suggests the possibility of "a dynamic reorganization of the brain structure in this area as a function of learning and using an L2" (29, 57).

An increase in grey matter volume/density in bilinguals as compared to monolinguals has also been reported in such brain regions as IFG and superior parietal lobule (21), inferior parietal lobule (32), the caudate nucleus (17), the bilateral cerebellum (29), and in the ACC (2). Those changes have been demonstrated to appear not only as a result of life-long bilingual experience but also after a relatively short- term language learning experience, which makes it possible to claim that "short- term learning can indeed modify brain structures" (23, 11), (29, 57).

Changes in white matter density as a result of second language learning have been demonstrated to occur in the study of Golestani & Pallier (2007), in which twenty-one French- speaking participants were trained to produce a voiced uvular stop consonantal sound native to the Farsi language and distinguishable from any French speech sound. Those more successful in the task were demonstrated to have higher white matter density in the left insula, prefrontal cortex and in inferior parietal lobes.

Conclusion. Acquisition of novel skills and abilities is a process entailing actual observable and measurable changes in both functional and anatomical organization of the brain. The Human linguistic ability has been demonstrated to be localized in a number of brain regions and complex neural networks responsible for various aspects of language processing. L2 acquisition is a protracted experience reliant on existing neural pathways not exclusively confined in their activity to language processing proper.

This biological foundation of L2 learning/acquisition, in our opinion, can be viewed as the principal factor explaining the relative paucity of language learning methods/techniques mentioned at the very beginning of the present paragraph: since there are only certain factors that entail the establishment of novel or severance of old neural connections, there are only a limited number of paths one can follow in order to bring those changes into being. Biology limits our abilities and the methods that can be utilized to strengthen them (4, 4).

Since the exact organization of both white and gray matter in the human brain is unique and dependent on both nature- and nurture-related factors, it might be suggested that a greater gray matter density or white matter connectivity present in some individuals might confer upon them certain advantages in L2 learning absent for those deprived of similar matter modifications.

Approaches, methods, and techniques of foreign language instruction, therefore, cannot escape the naturally imposed limits.Taking into account the fact that foreign language learning is a process of human brain change and the way those changes occur cannot be influenced but only followed in foreign language teaching profession. There are, consequently, no essentially innovative methods since when it comes to the human brain, we are yet unable to influence its inner workings to any extent that would be measurable or indeed noticeable.

A Foreign language learning classroom is a place of perpetual stability: the foundations never change; what does change are non-essentials that bear little to no influence on the successful foreign language acquisition. In other words, "innovations" in foreign language teaching in the sense described above are simply not possible: the human brain works precludes

foreign language instructors from doing anything that would substantially alter the biological mechanics in question.

A Mesopotamian language classroom is not that different from one located anywhere else in the world now since the brains of Mesopotamian students were not that different from those of their present-day peers. Language learning is a biologically limited process, and the only things that might work are those that follow the biology proper rather than another way around.

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