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INTERDISCIPLINARY ANALYZING LANGUAGE AS AN INTEGRAL SYSTEMIC ENTITY IN THE PLANE OF THE ENGLISH LANGUAGE TEACHING PRACTICE

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The article presents the extrapolation of some important facts concerning the interdisciplinary research, that enables to implement this research in the plane of the English language teaching practice. The conducting of the extrapolation presupposes both the theoretical analyzes of some problems, and using a number of phenomena and concepts, such as the spacing effects in learning (when learning process is more effective when study sessions are spaced out thus more information is stored in long-term memory by such spaced repetition), the priming effect (an implicit memory mechanism that provides an unconscious and involuntary influence of a stimulus perceived by a person on the processing of subsequent stimuli), the sound symbolism (individual sounds of languages reveal the motivation of their content/meaning and can be assessed by native speakers in the context of various scales), the "deep grammar" (being common to all languages), the subjective semantics (reveals "complexes of perceptual universals", enabling to conclude about the existence of dictionaries of visual experience – universal systems of visual images that allow us to interpret/classify most if not all objects of the world in an invariant way), the fractal and holographic effects concerning the organization of speech activity (is correlated to "deep grammar" when there is a certain universal and fundamental "ground" for any language).

It is shown that lexical units of the mother tongue and target language can be presented and mastered comprehensively and simultaneously, since lexical units that exhibit a certain phonetic similarity can record the activity of common to these units neural area of the human brain, which implements/activates the associativity of human thinking, perception and processing of information. Thus, cognate and similar words in the context of etymological, word formation and associative-phonetic connections create holistic verbal networks (complexes) in human brain that can be used in the process of mastering foreign languages holistically, that is, these lexical units should be taught and learnt in a holistic context.

Keywords: *internalization and globalization of education; strategies for mastering foreign languages; lexical unit; semantic field; implicit memory mechanism.*

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МІЖДИСЦИПЛІНАРНИЙ АНАЛІЗ МОВИ ЯК ЦІЛІСНОЇ СИСТЕМОЇ СУТНОСТІ В ПЛОЩИНІ ПРАКТИКИ ВИКЛАДАННЯ АНГЛІЙСЬКОЇ МОВИ

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У статті представлено екстраполяцію деяких важливих фактів щодо міждисциплінарного дослідження, що дозволяє реалізувати ці дослідження в площині практики викладання англійської мови. Проведення екстраполяції передбачає як теоретичний аналіз певних проблем, так і використання низки явищ і концепцій, таких як ефекти інтервального навчання (процес навчання є ефективнішим, коли навчальні сесії розподілені на певні відстані, таким чином більше інформації кодується в довготривалу пам'ять завдяки такому інтервальному повторенню), ефект праймінгу (імпліцитний механізм пам'яті, який забезпечує несвідомий і мимовільний вплив стимулу, сприйнятого людиною, на обробку наступних стимулів), звуковий символізм (окремі звуки мови розкривають мотивацію їхнього змісту/значення та можуть бути оцінені носіями мови в контексті різних шкал), "глибинна граматики" (спільна для всіх мов), суб'єктивна семантика (виявляє "комплекси перцептивних універсалій", що дозволяє зробити висновок про існування словників візуального досвіду – універсальних систем візуальних образів, які дозволяють нам інтерпретувати/класифікувати більшість, якщо не всі об'єкти світу, інваріантним чином), фрактальні та голографічні ефекти щодо організації мовленнєвої діяльності (корелює з "глибокою граматикою", коли існує певна універсальний та фундаментальний "ґрунт" для будь-якої мови). Показано, що лексичні одиниці рідної мови та мови, що вивчається, можуть бути представлені та засвоєні комплексно та одночасно, оскільки лексичні одиниці, що демонструють певну фонетичну схожість, можуть фіксувати активність спільної для цих одиниць нейронної області людського мозку, яка реалізує/активує асоціативність людського мислення, сприйняття та обробки інформації. Таким чином, спільнокореневі та подібні слова в контексті етимологічних, словотвірних та асоціативно-фонетичних зв'язків створюють цілісні вербальні мережі (комплекси) в людському мозку, які можуть бути використані в процесі оволодіння іноземними мовами цілісно, тобто ці лексичні одиниці мають викладатися та вивчатися в цілісному контексті.

Ключові слова: інтерналізація та глобалізація освіти; стратегії оволодіння іноземними мовами; лексична одиниця; семантичне поле; механізм імпліцитної пам'яті.

Introduction of the issue. Modern education, including foreign language education, in the sphere of its scientific exploration is engaged in the search for both the fundamental meanings of the educational process and the development of innovative and effective learning as well as teaching strategies. This is happening against the background of the internalization and globalization of education, which presupposes the spread of interdisciplinary research in the context of the aforementioned processes.

Current state of the issue. Due to the process on internalization and globalization of education, a lot of problems of mastering (teaching and learning) foreign languages are in the focus of scientific attention of many scholars who consider such aspects of this process as methodological and organizational, psychological and

motivational, psycholinguistic and behavioral [2; 7; 10; 14; 16; 21; 23], metacognitive and philosophical [5; 12; 27; 28], paying attention to the strategies for mastering foreign languages [4; 8; 9; 18]. At large, the problems of teaching and learning foreign languages has gained an interdisciplinary dimension [25; 26] covering such aspects as the spacing effects in learning [3; 11], the priming effect [1; 6], the sound symbolism [13; 19] enabling to analyze language as an integral systemic entity in the context of the "deep grammar" [13] and subjective semantics [15; 17; 20; 22].

The problems of extrapolation of the mentioned interdisciplinary research, that is, of implementing this research in the plan of teaching practice is of great significance.

Aim of the research. The purpose of the article is to conduct the extrapolation

of the facts concerning the interdisciplinary research, enabling to implement this research in the plane of the English language teaching practice.

Research methods. The conducting of the extrapolation of the results of the interdisciplinary research, enables to implement this research in the plane of teaching practice and presupposes both the theoretical analyzes of the mentioned problems, and using a number of phenomena and concepts, such as the spacing effects in learning, the priming effect, the sound symbolism, the "deep grammar", the subjective semantics, the fractal and holographic effects concerning the organization of speech activity.

Results and discussion.

1. Psychological effects of subjective semantics.

Scientific research on the neural organization of the human brain has shown that neurons function according to an integral mechanism, thus perceiving and processing generalized and associatively organized verbal information. Under such conditions, identical content-morphological, phonetic, graphic elements/aspects are perceived by the brain of subjects in the educational process as systemic, holistic formations [24] reveal a certain phonetic similarity and a related etymological source, can record the activity of a certain (common to these units) neural area of the human brain, which implements/activates the associativity of human thinking and information perception.

This allows us to state certain principles of acoustic speech formation in the corresponding areas of the human brain, being embodied in the *psychology of subjective semantics*, which allows us to analyze "operational units of perception" that outline a particular object in an invariant manner enabling to form various semantic fields and spaces [15].

Thus, studies have revealed the semantic similarity of lexical units expressing animal names, when animal names show signs of extralinguistic

origin, and animals are understood by people in a completely different way than is the case in certain biological classifications.

Coordinate vectors ("actual coordinates of experience") have been identified that characterize concepts denoted by words of various languages in different cultures, which allows us to formulate the phenomenon of "stable coupling" of object properties [20].

These studies have allowed us to assert that visual objects (presented, for example, in geometric shapes) of the environment are characterized by recipients who use verbal tools to describe these objects in a sufficiently stable and invariant manner. This phenomenon reveals "*complexes of perceptual universals*", enabling to conclude about the existence of dictionaries of visual experience – universal systems of visual images that allow us to interpret/classify most if not all objects of the world in an invariant manner [17; 22].

2. The priming effect.

A word as a sensory signal causes excitation in the brain in certain neural ensembles not only in areas of the brain associated with the perception of verbal information, but also in areas associated with the properties (functions and actions) that this word transmits/reflects, which has been called the "priming effect", revealing perceptual, semantic, conceptual, affective, and cultural aspects [1; 6].

In general, priming effect (the "prevention effect", "fixed setting") in psychology and psycholinguistics is an implicit memory mechanism that provides an unconscious and involuntary influence of a stimulus perceived by a person on the processing of subsequent stimuli. Priming is manifested in a change in the speed or accuracy of the response to subsequent stimuli, or in a more likely spontaneous reproduction of the first stimulus under appropriate conditions.

The general principle of priming effect is the "*binding effect*" – a feature of the assessment of numerical values by a

person, due to which it shifts towards previously perceived numbers, even if these numbers have no relation to the value being assessed. The "binding effect" can be referred to a phenomenon where the priming effect of two features is stronger when they are presented in combination compared to when presented in an individual way [6].

The word, therefore, turns out to be a "compressed life/communicative experience", which embraces both human experience and reflects this or that aspect of reality. And since, by virtue of the logic of definition, in order to define an object through words, it must be compared with other objects, which also require definition and further comparison with other objects. Thus, a separate word fractally-holographically reflects (and actualizes) the whole of reality, which can be illustrated by the words from the first chapter of the Gospel of John: "In the beginning was the Word, and the Word was with God, and the Word was God".

3. Language as an integral systemic entity.

The priming effect enables to analyze language as a holistic entity organized according to the principle of the holographic effect (the principle of "all in all"), when a sufficiently limited volume of verbal text, being a certain wholeness, turns out to be equally powerful for the entire corpus of language, which appears as an integral systemic set. Under such conditions, the comprehension of a certain limited volume of a language in a perfect way means that a person achieves mastery of the language as a whole. As a metaphor, we can present a case that illustrates the above thesis: a prisoner mastered the English language with the help of several Shakespearean sonnets, since based on repetitive plunging into these sonnets he constantly actualized the corresponding neural areas of his brain. At the same time, the English language is a colossal ocean, immeasurably larger and richer than the linguistic material of the sonnets, but here we talk not about perfect command of English in all its

entirety (this is impossible even for a native speaker), but about mastering its certain "holographic aura", the "spirit of language", the linguistic thought forms that lie below verbal and extraverbal means of communication.

This deep level (which in a certain way correlates with the phenomenon of "deep grammar" of N. Chomsky [13] is common to all languages, as some scientists believe, thus constituting a certain universal and fundamental "ground" of linguistic means and is associated with the concept of "universal semantic/information space of the Universe" (and the universal language stemming from this space).

Scientists who analyzed the basic vocabulary (a set of about 100 most used words) for 60% of the Earth's languages found that there is a certain connection between the names of the same objects even in languages remote from each other. For example, the word "nose" realizes a certain physical phenomenon, which in general terms is denoted in the same way in any part of the globe.

4. Sound symbolism.

Sound symbolism is considered as a wide range of phenomena associated with the semantization of individual sounds and sound combinations. These include 1) onomatopoeia and their derivatives, secondary interpretation of words that are not onomatopoeia (vocabulary directly related to beings or objects – the sources of sound), 2) the words built on expressive phonetic sequences, 3) the phenomena of synesthesia (association of sounds with light-colored, tactile and other sensations), 4) the connection of sounds with some abstract ideas (in many languages, words that convey, for example, the idea of "insignificance", "smallness", contain the sound [i]), etc. Sound-symbolic vocabulary often finds similarities in related and unrelated languages. For many of such phenomena, considerable antiquity can be seen, up to the sources of human language in general.

Traditionally, the following phenomena are distinguished in

language due to sound symbolism as designations of light phenomena; properties of objects, their surface, shape, appearance, texture; way and manner of movement; characteristics of appearance, facial expressions, emotions, and moods. Thus, individual sounds of language reveal the motivation of their content/meaning and can be assessed by native speakers in the context of various scales (for example, "strength-weakness", "kindness-cruelty", "slowness-rapidity", etc.) and individual qualities (color, movement, substance, etc.) [13; 19].

5. The extrapolation of the analyzed phenomena and concepts in the practical plane.

Let us present some examples that illustrate the phenomenon of sound symbolism, and can also be used in the field of foreign languages teaching, when lexical units can be presented and master comprehensively and simultaneously, since lexical units that exhibit a certain phonetic similarity (and sometimes related etymological sources) can record the activity of a certain (common to these units) neural area of the human brain, which implements/activates the associativity of human thinking, perception and processing of information.

Thus, cognate/similar words in the context of etymological, word formation and associative-phonetic connections create holistic verbal networks/complexes in human brain that can be used in the process of teaching/learning foreign languages holistically, that is, these lexical units should be taught and learnt in a holistic context [26; 27].

Under such conditions, educational texts in English may contain words belonging to one root and association group, which may be quite large in volume. Let us consider some examples related to the approximative-analytical method of learning/teaching foreign languages that we have developed.

Let us present a root and etymological group that focuses on the word *long*: longevity, longer, longest, belong,

belonging, length, prolong, lengthen, prolongation, prolonged, lengthened longitude, London, long for, long ago, a long while ago, a long time, linger, Longmont, any longer, long way, lingering, age-long, lifelong, link, along, long-armed, long-headed, oblong, leg, log, elongated, elongation, lingo, linguist, purloined, lung, lank, lanky, cling, longanimity, alongside, so long, prolongation, etc.

At the same time, a root and etymological group can include words that, at first glance, are unlikely to belong to it (for example, breeze – to breathe – breath – *breast*).

Let us present a root and etymological group that focuses on the associative-approximate meaning of the word *admiral* (having such metaphoric description: "a person in a wonderful, bright sea uniform, worthy to be admired"): admiral, admiralty, admire, mire, admirable, admirer, admiring, admiration, mirage, mirror, miracle, miraculous, etc.

Let us present a root and etymological group that focuses on the associative-approximate meaning of the word *close* ("to close", "to limit", "to encompass", etc.): close, closet, cloud, cloth, clothes, clot, clod, clench, cling, clutch, clasp, clip, clam, cluster, clock, lock, etc. It is interesting to present some derivative associations: Latin "claudere" ("to shut," "to close," "to block," "to enclose") → cloud – occlude – include – exclude – reclude – seclude – preclude – conclude.

Next, we present a root and etymological group that focuses on the associative-approximate meaning of the word *scrape* ("to scrape", "to scratch", etc. – in Ukrainian: "скребти", "обскрібати", "зскрібати"): scrape, scrapper, scraper, scab, scarab, scrabble, scrub, rub, scribble, scrawl, scratch, scramble, describe, scratch, scrub, scoop, scope, scope, cap, cape, Capitol, Capital, escape, etc.

Let us consider some other examples.

The English sound set "fl" expresses the meaning of mobility, lightness, airiness, dynamics, which is manifested in the sphere of various environments:

flag, flake, flame, flannel, flap, flare, flash, flea, fledged, flee, fleece, flexible, flight, flinch, flimsy, fling, flip, flirt, float, flock, flog, flood, flop, flounce, flour, flourish, flow, fluctuate, flue, fluency, fluent, fluff, fluid, fluorescence, flurry, flush, fluster, flute, flutter, flux, fly, etc.

The sound "j" expresses the meaning of condensation, accumulation: jam – jelly – gist – congeal – jolly – jungle – juice, etc.

Here are some more examples showing that sound complexes can include words with quite similar meanings, especially when we analyze the presented examples using our creative associativity.

Cap: cup – cab – coop – cope – cape – keep, etc.

Edge: ledge – wedge – sledge – dredge – fledge (flow + edge) – pledge – hedge – kedge – sedge – selvedge (selves + edge) – straightedge (straight + edge), etc.

Squeak: squeal – shrill – screech – shriek – squall – scream – squawk – squeak – creak, etc.

Whole: wholesome – heal – hale – health – healthy – holy – goal – hail (to greet), etc.

"Bl": bleed – blood – blow – bloom – blossom – blast – bluster – blush – blind, etc.

"Gl": glow – glitter – gleam – glee – glory – glue – global – glad, etc.

"Pr": prize – price – praise – appraisal – appreciate – precious – pressure – press – prestige, etc.

"Sl": slouch – slough – sloven – slow – sludge – sluggard – slum – slump, etc.

"Sp": spear – spiral – spike/pike – spoke – spread – spar – sprit – spit, etc.

"Str": street – stroll – stream – stride – stroke – streak – straight – strain – strait – straddle – strafe – straggle – strake – strand – strangle – strap – strata – straw – stray – streak – strength – stress – stretch – strew – strict – strife – strike – string – strip – stripe – strode – stroma – strong – strop – structure – struggle – strung – strut, etc.

"Su": swipe – sweep – sway – swing, swoop, switch, swish, swirl, etc.

"Ash": flash – slash – plash – splash – clash – rash – gnash – gash – lash – bash – brash, etc.

"Ush": rush – gush – flush – mush – plush – slush – lush, etc.

Here are some **bilingual parallels**.

Ukrainian "СТ" (нерухомість, стійкість, непохитність), English "ST" → стіл, стілець, станція, стовп, статуетка, поставити, настанова, установка, обставини, місто, стабільність, стан, стійкість, стіна, ступень, пристань... = state, stable, stand, stack, stock, constant, station, statute, step, stout, pedestal, install, etc.

Ukrainian "СТР" (простір, рухливість), English "STR" → стріла, струм, стрімкій, струна, простір, простирало = stretch, prostrate, straight, strong, strive, stream, etc.

Ukrainian "РБ" (рубати), English "RB/P" → рубль, рубати, зарубати, зарубка = rub, rubble, robe, rip, grab, grub, etc.

Ukrainian "ГР" (огорожа), English "GR" → город, огорожа, гардина = guard, guardian, great, gross, grid, grab, grub, grade, gradient, gradual, graffiti, etc.

Ukrainian "ТР" (трепетати), English "TR" → трепетати, трясти, страх, пристрасть, страждання, потрясіння, тряхнути = trip, trend, train, trash, trim, trigger, trouble, track, travel, trap, trace, etc.

Ukrainian "ПЛ" (площина), English "PL" → площа, платівка, плато, план, плоский = plate, plateau, plan, plain, plane, platter, flat (p → f), etc.

Conclusions and research perspectives. The conducted analysis allowed us to conclude that related (similar etymologically, associatively, and in structure, word-forming way) lexical units in the context of etymological-word-forming and associative-phonetic relationships should be used in the process of mastering foreign languages in a holistic way, that is, these words should be studied in an integral context due to doing certain exercises, since the human brain is inclined to perceive generalized and associative verbal information, forming holistic verbal networks based on holistic neural ensembles. Thus, etymologically and associatively cognate words create

undivided verbal networks that should be used in the process of teaching/learning foreign languages [25; 26].

The integrating use of wholesome lexical complexes allows pupils and students to learn a vast number of words, including words that are used extremely rarely, but which native speakers perceive as related/cognate, that is realized in childhood during the acquisition of the language as a native, when verbal information is perceived by children in the sphere of a certain

deep/universal/generative grammar (N. Chomsky) in an associative-word-forming manner in the context of the mechanisms of subjective semantics, enabling to combine/integrate diverse information related to different sensory systems thus developing synesthesia as one of the accesses to creative activity.

The research perspectives of our article relate to further development of the results of our research in the sphere of teaching and learning methods, methodologies and strategies.

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