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Systemic Paradigm of Innovative Educational Communication in The Digital Realm

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ABSTRACT

The objective of the study is to explore the systemic premises and paradigmatic structure of innovative educational communication in the digital realm, modelled and modified by the Covid-19 emergency digitization measures in educational process.
The object of research is innovative educational communication in the global digital environment. The innovative nature of communication in the field of acquiring new knowledge in the global digital environment is determined by the phenomenological consolidation of substantive (ontological, presuppositional/cognitive) characteristics of the macrostructure of communication in statics and end-to-end dynamic interaction of formal and semantic constituents and technological (digital) tools. The paradigm of innovation of educational communication in the digital realm (as a multidimensional, complex, dynamic system) is defined as the most comprehensive quantitative and qualitative terms of linguo-cognitive actualization of being, determined by a number of qualifying conditions of its emergence, existence and development. The study results allow to provide a transdisciplinary synthesis of educational communication paradigm across communicative theory, information theory, philosophy, education and e-learning studies, semiotics, digital humanities.

Keywords: Innovative Educational Communication, Digital Environment, System, Paradigm, Digital Education, Digital Presupposition

1. INTRODUCTION

As a product of modern civilization, the digital reality has become an independent format of being. Accordingly, electronic media act not only as a means of transmitting information, but also reveal their own world-creating, meaning-making and, as a consequence, language-forming and communicative potential [46; 48; 50]. The global digital realm stands as an integral environment, demanding new cognition and perception ways via complex philosophic, cultural, social, linguistic approaches, providing unlimited opportunities for human intellect, language development and research.
Given the conceptual system of identification of onto-mental and linguo-mental complex formations to identify constructs of reality, the global digital realm (cyberspace) and its innovative communicative shell can be located in the transdisciplinary coordinates of such paradigms: 1) philosophy - as *a particular type of substance* – material and ideal reality in the multitude of its forms; a meta-negentropy (the term after Nagib Callaos [6]); 2) anthropology – as an environment for actualization of post-humanistic forms of anthropogenesis; 3) psychology – as psychosomatic and emotional plane of a personality functioning; 4) sociology – as a system of multi-tiered and multi-directional social and communicative relations; 5) in culturology - as a sphere of spiritual experience, 6) in the theory of communication - as a system of multilevel, multidirectional social relations and communicative interaction.
Innovative educational communication in the global digital realm (IECDR) is, therefore, transdisciplinary understood as an integrated at the macro and micro level set of usual language innovations and innovative communication practices and technologies, which by their specific characteristics are conditionally exhaustive phenomenological correlates of various substrate elements of the digital environment.
Theoretical problems of holistic, transdimensional modeling of reality and its separate spheres are directed by the deterministic interaction of objects, signs of their reception and interpretation (in the field of individual and collective consciousness), embodiment, consolidation and retransmission of the results of interaction of these systems of features.
Conditions for the development of modern globalization civilization determine the expansion and refinement of the paradigm of views on the theoretical principles of determining the groundwork and characteristics of the consolidation of the world order, its perception in culture, collective social consciousness and natural language.
The transdisciplinarity of innovative educational communication in this respect is accessed through is the conceptual lens of the **logosphere**, synthetically perceived as 1) the plurality of language units, which are conditionally exhaustive phenomenological realizations of abstract and empirical elements of different spheres of life [4; 23]; 2) the zone of integration of thought, speech, and experience continuums of cultures [5; 16; 26]; 3) the plurality of culturally relevant universal meanings and signs - **semiosphere** [27]; 4) a plurality of transcendent spiritual meanings – **pneumatosphere** [14].
Foreign Languages Acquisition on university-level major programs is a rigorous process that involves different stages and a regimen of communicative educational activities, communication types and competences across interconnected

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domains [24; 25]. Transdisciplinarity and ubiquity (universality) of innovative communication for Foreign Languages Education (FLE) in the 21st century, therefore, is informed, in crucial ways, by intellectualization and amplified information capacity of human activities in general. Thus, the intellectualization of modern global culture determines a qualitatively new approach to understanding the processes of parallel development of human activities, cognitive (intellectual), and communicative experiences. That is the origin and methodological premise of the concept of "noosphere". Noosphere is the unity of "nature" and culture, especially from the moment when the intellectual culture reaches (by force of influence on the biosphere and geosphere) the power of a peculiar "geological force" [40].

The noosphere is defined as the current stage of development of the biosphere, associated with the emergence of humanity in it [16; 40], and is interpreted as part of the planet and planet ambient with traces of human activity.

The integral real component of the Noosphere is identified as the Technosphere - a set of artificial objects (technologies) created by the humankind, and natural objects changed as a result of technological activity of humankind [28]. In turn, Computer Being (computer reality, cyberspace) is a complex, multidimensional sphere of synthesis of reality, human experience and activity mediated by the latest digital and information technologies; technogenic reality, a component of the technosphere of existence [17; 28].

Therefore, it is stipulated in **the study design**, that the cognitive (Noosphere) premise *of innovative educational communication in the digital realm* (IECDR) is informed by the following **dimensions**: 1) the *transdisciplinary dimension* of IECDR, disclosed through the mutual transformative potential of information and modern technology, as "knowledge in a scientific sense can lag only slightly behind this world transformation because knowledge becomes transformed in the process" [17]; 2) *the universal dimension* of IECDR, disclosed through the pervasive, ubiquitous nature of humanitarian and linguistic (especially multi-cultural) knowledge applicability, as "science and technology revolutionize our lives, but memory, tradition and myth frame our response" [32]; 3) *the interoperable dimension* of IECDR, informed by the underlying anthropocentrism of linguistic knowledge and skills, providing the interface for development and application of skills and activities across different domains, as "a human is a nexus of existential horizons" [22].

The result of a fundamental Technosphere shift in the sphere of Foreign Languages Education, induced by the COVID-19 pandemic development and enhanced by continuous iterative digitalization measures, was the need to take quick comprehensive action [29; 36] in order to achieve such desirable results: a) To activate comprehensive transdisciplinary domains and corresponding interdisciplinary skillsets, otherwise latent or underutilized in the Foreign languages educational process; b)To enhance the scope foreign language communication skills beyond the domains traditionally reserved for Liberal Arts education; c) To boost information and communication technological competence and digital literacy of FLE stakeholders, to meet the requirements of COVID-19 job market and workplace.

The **objective** of the study is to explore the systemic premises and paradigmatic structure of innovative educational communication in the digital realm, modelled and modified by the Covid-19 emergency digitization measures in educational process.

The study of groundwork principles of universality and transdisciplinary of educational communication in professional linguisitc training and linguistic education in general is a parcel of the framework project *TRANSITION: Transformation, Network, Society and Education* [28; 29; 30].

2. FINDINGS

Systemic Modelling of Innovative Educational Communication

The framework (or paradigm) modelling of innovative educational communication in the digital realm is predicated on the following **key premises**: 1) the phenomenological nature of innovative communication in the field of acquiring new knowledge (education in the broader sense) in the digital environment involves an inseparable, mutual combination of its linguistic and substantive (ontological, epistemic and anthropological) aspects in the vertical plane of mutual expression of categories of essence⇔phenomenon; 2) the paradigm of innovation of communication in the field of acquiring new knowledge in the global digital environment is determined by the phenomenological consolidation of substantive (ontological, presuppositional/cognitive) characteristics of the macrostructure of communication in statics and end-to-end dynamic interaction of formal and semantic constituents and technological (digital) tools.

Within the phenomenological approach [49; 51] global semiotic integration of macro- and microstructures of innovative communication in the field of acquiring new knowledge in the global digital environment is identified as provided and implemented through deterministic interaction of multi-substrate (linguistic, spatiotemporal, essential, anthropological and social) parameters of this innovative communicative logosphere, given the significant synchronous density of rates and results of parallel development of verbal, ontological and anthropological continuums of the global digital environment [42; 43; 45].

The framework innovation of educational communication in the digital realm, thus (as a multidimensional, complex, dynamic system) is the most comprehensive quantitative and qualitative terms of language representation of the linguistic actualization of being, determined by a number of qualifying conditions of its emergence, existence and development, including: 1) exhaustive synchronization process of the object, phenomenological and anthropological field of computer being and development processes of the ICT meta-language; 2) exhaustive output of parameterization isomorphism of ontological (substance phenomenological), anthropic and digitized structures of reality; 3) flexibility, adaptability and dynamic potential of the vocabulary of the modern languages (heavily influenced by English hegemony) in correlation with the ICT sphere (that is fulfilled, in particular through info-capacity, sign hybridization, the evolution of the basic ontological and functional features of neologisms in relevant areas).

Given the features of digital logosphere as specific linguistic-onthological, phenomenological-linguistic and a linguistic-semiotic object, it is possible to distinguish the following typological characteristics of IECDR:

A) The ability to conditionally complete phenomenological realization of substantive identity of the digital realm in significative characteristics of verbal units that constitute the relevant innovative logosphere. The following typological characteristics of ICL are to be phenomenologized, particularly at the paradigmic level of the external form.

B) Structural density volume, uniformity and conditional completeness of innovative codification of multi-substrat configuration of digital communication.

The following grid of groundwork concepts is applied to profile the Innovative Communication for Foreign Languages Education (FLE) in such disciplinary dimensions (Fig. 1):

- TRANSDISCIPLINARITY
- METADISCIPLINARITY
- UNIVERSALITY
- INTEROPERABILITY

Figure 1: Conceptual Grid of the Inquiry

The meaning of TRANSDISCIPLINARITY is synthesized for the purpose of this study as a transcendent agglomeration of two or more fields of knowledge into one scope/goal of study, inquiry or activity [6; 15; 18; 21].

UNIVERSALITY is generally understood as a property of object or state **to "exist** everywhere **(ubiquity), or involve everyone"** [7]. In the context of this study we suggest to attribute the property of universality/ubiquity to social activity, vocational activity and professional performance.

The concept of INTEROPERABILITY is disclosed across different approaches [20; 34; 35] as a characteristic of an object, product or system, that allows its interface to be comprehensible, to work with other objects, products or systems.

As applied to innovative educational communication in the digital realm, the concept of interoperability represents the property of functional, dynamic interconnectivity between the source and target domains of linguistic content, linguistic theory content, related areas of scientific and universal knowledge, and domains of professional and social application. Degrees of interoperability help define the measure of interdisciplinary transcendence and universality of activities, skills and competence applications of FLE stakeholders.

The generic concept of multiple disciplinarity [1; 38] comprises, in its turn, of a framework of interconnected concepts:

- Multi-disciplinarity;
- Interdisciplinarity;
- Transdiciplinarity;
- Metadisciplinarity.

Multi-disciplinarity, thus, is understood as a multitude of fields of knowledge, that comprise the scope of understanding a certain object, problem or area of inquiry.

Interdisciplinarity in this respect is interpreted as the interconnectivity of multiple spheres of knowledge that comprised the content of a problem or area of inquiry.

Trans-disciplinarity, subsequently, is perceived as a transcendent product of merging multiple interconnected knowledge domains.

Transdisciplinarity of innovative educational communication in general is, therefore, postulated in this study as a computational framework of interconnected types of disciplinarities.

Meta-disciplinarily *of innovative educational communication is determined through the digital ambient, content and tools of its implementation.* The digital meta-dimension becomes the source of systemic structuring of innovative educational communication on macro- and micro-levels.

Multidisciplinary **input** into the education design and content in the form of data, information and facts across different source domains of human knowledge in order 1) to constitute the thematic content of language acquisition; 2) to constitute the semantic referents of linguistic units; 3) to constitute the vast framework of reference and contexts for communicative application.

Interdisciplinary connections of the educational **content** for FLE – internal interconnectivity of theoretical and applied disciplines, external interconnectivity of FLE content with non-related areas of human knowledge (computer science, physiology, anthropology, philosophy etc.).

Transdisciplinary **output** in the transcendent nature target knowledge domains and universal applicability of skills, training and outlook of the FLE professionals upon graduation.

The transdisciplinary integration of innovative educational communication could be referred to the following key interdisciplinary domains of human activity [30]: COMMUNICATION; COGNITIVE ACTIVITY; PERSONAL INTERACTION; SOCIAL ACTIVITY; HEURISTICS.

Interoperability for FLE skills ensured by the communicative nature of interdisciplinary skills. The core cross-sectorial domain that is referential for primary skills (social skills, emotional intellect, collaboration, communication, ICT-literacy), necessary for educational goals achievement, is COMMUNICATION.

The digital dimension of communicative interoperability of FLE stems from the structure of Noosphere [40] and content of its components: ANTHROPOSPHERE - a set of people as living organisms, their activities and achievements; SOCIOSPHERE - a set of social factors characteristic of this stage of society development and its interaction with nature; TECHNOSPHERE - a set of artificial objects created by man, and natural objects, altered as a result of human activity.

Given the nature of increasingly digitalized context of foreign languages education and communicative application ("the Technospheric shift" [30]), it is suggested to consider the different types of information source and information destination (human and machine/computer/program, accordingly) in the structure of the groundwork Communication model (Cf. Claude Shannon [33]), when communication is approached as the core factor of interoperability of source and target knowledge and application domains in FLE.

Thus, the fundamental transdisciplinarity, that COVID-19 digital procedural transformations imposed on the educational process in the area of Foreign languages acquisition, is verified by a unified framework of correspondence between the components of a crucial communicative competence [19], comprising of a diverse skillset, and various aspects of ICT competence in Liberal Arts [3; 12; 13; 39;], utilized in the educational process, elaborated for the purposes of this study (Fig. 2):

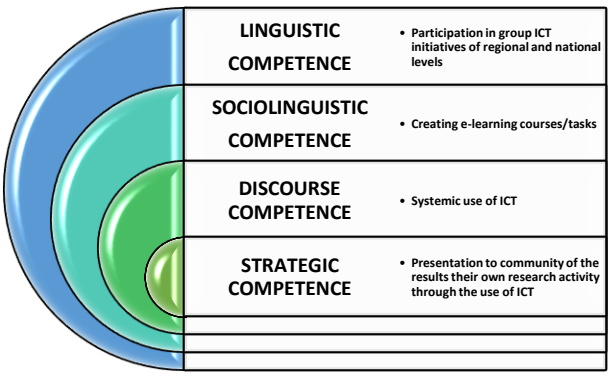

Figure 2: Interoperability of Communicative Competence and Digital Competence in IECDR

The following study aims to identify, among other parameters, challenges for actual and underdeveloped cross-sectorial and

transdisciplinary skills (hard, technical and soft), that participants of the educational process encounter through the progress of complex innovative communicative, digitally enhanced scenarios.

Presupposition Paradigm of Innovative Educational Communication in the Digital Realm

The innovative nature of communication in the field of acquiring new knowledge and education in the global digital environment is determined by the phenomenological consolidation of substantive (ontological, presuppositional) characteristics of the macrostructure of communication in statics and end-to-end interaction of formal and semantic constituents and technological (digital) tools. communicative cognitive / educational practices). Accordingly, innovative communication in the global digital environment in the field of acquiring new knowledge is understood as vertically integrated at the macro and micro level set of usual language innovations and innovative communication practices and technologies, which by their typological specificity are conditionally exhaustive phenomenological correlates As a language macrostructure, innovative communication in the digital environment is modeled by the interoperability of language, cognitive (presuppositional) and communicative-activity parameters. As a structural macrocomponent of the digital environment, innovative English-language communication in the field of acquiring new knowledge is modeled by interoperability and synthesis of technological and communicative-activity parameters.

As a communicative macro-system, the innovative educational communication in the digital realm is distinguished by the functional, dynamic interoperability of linguistic, cognitive (presuppositional) and communicational parameters (the source and target domains of linguistic content, linguistic theory content, related areas of scientific and universal knowledge, and domains of professional and social application). Degrees of interoperability help define the measure of interdisciplinary transcendence of activities, skills and competence applications of education stakeholders (Fig. 3):

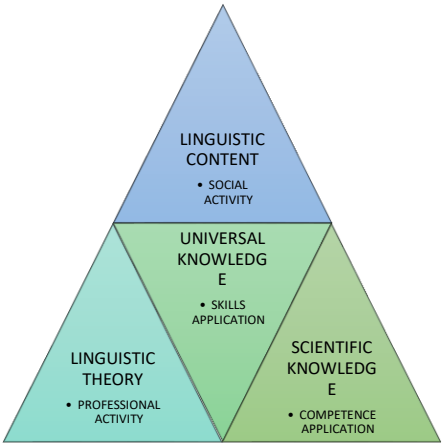

Figure 3: Presupposition Paradigm of Innovative Educational Communication in the Digital Realm

As a structural macrocomponent of the digital environment, innovative educational communication is modeled by interoperability and synthesis of technological and communicative-activity parameters (Fig. 4):

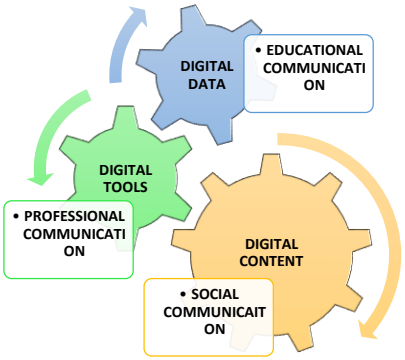

Figure 4: Digital Paradigm of Innovative Educational Communication

The process of digitization of the linguistic and communicative space of global society, especially under the quarantine restrictions of 2020-2021, required the simultaneous use and intersection of such structurally and communicatively complex formats of new knowledge and visualization of the paradigm of relevant linguistic nouns to denote innovative formats: E-Learning 1.0 (direct synchronous distance communication in the field of acquiring new knowledge using digital technologies and tools); E-Learning 2.0 (mainly asynchronous communication in the field of acquiring new knowledge through digital technologies and tools; this nomen is part of a synonymous pair of innovations together with "networked learning"); E-Learning 3.0 (mostly asynchronous communication in the field of acquiring new knowledge using digital artificial intelligence technologies); B-(lended) -learning (personal communication in the field of acquiring new knowledge using asynchronous ICT-based methods, this innovation unit is part of the telescopic reduction paradigm according to the STL model (space / time / location) -learning: u (biquitous) -learning , m (abundant) -learning); Hybrid learning (synchronous learning of present and personal subjects with the help of ICT).

Modeling the epistemic basis of innovative communicative activity and the transformation of cognitive experience of acquiring new knowledge into digital format, thus, is possible through the combination and synthesis of the following set of parameters: Time; Space; Communicative distance; Dependence on digital communication tools and digital infrastructure; Level of difficulty.

Given the above, the innovative logosphere of information and communication technologies, e-learning and digital competencies as a linguistic and presuppositional prerequisite for innovative communication in the field of acquiring new knowledge in the digital environment is defined as: a) syncretic, fixed in its semantic volume; are asymptotically (i.e. in an unlimited approximation) exhaustive incarnations of the basic and factual elements of the modern digital environment. b) vertically integrated at the macro and micro level set of digital technologies, communicative practices of e-learning, hybrid learning, thesaurus of digital and interdisciplinary competencies as a locative and presuppositional component of innovative communication, its typological specificity is relatively comprehensive phenomenological environment.

Responsible technology [47] in the context of innovative communication in the digital environment is understood as anthropocentric technology and tools designed for real communication situations and scenarios, tested by assessing the

most perlocutionary effective communication practices. Functional interpretation of responsible technology is the most optimal for the analysis of syncretic transformation of complex language-communicative scenarios in the field of acquiring new knowledge into digital format.

Based on the derived interoperability model of communicative competence and digital competence (Fig. 2) the dominant elements of cognitive presupposition required for digital educational communication are metrically defined as follows: 1) strategic competence as dominant for participation in group digital initiatives; 2) linguistic (semiotic) competence and strategic competence to create the content of electronic knowledge / cognition / learning; 3) sociolinguistic competence and strategic competence as dominant for the systematic use of digital technologies; 4) discursive competence as dominant for presenting to the community the results of educational activities with the help of digital technologies.

The key dimensions of presupposition and combination of communicative tactics effective for different types of digital educational communication are defined as follows: 1) for oral speech activities the dominant digital dimensions of presupposition and communicative tactics are information and digital literacy, communication and cooperation; 2) in the field of written speech, the dominant digital dimensions of presupposition and communicative tactics are communication and collaboration, creation of digital content, digital communicative security; 3) for the activity of listening the dominant digital dimensions of presupposition and communicative tactics are information literacy and data transmission, communication and collaboration, creation of digital content; 4) for the use of innovative vocabulary, the dominant digital dimensions of presupposition and communicative tactics are communication and collaboration, creation of digital content; 5) for the use of rhetorical and stylistic figures, the dominant digital dimensions of presupposition and communicative tactics are communication and collaboration, creation of digital content, overcoming communicative barriers.

3. CONCLUSIONS

Applied linguophenomenological approach to the study of the object of inquiry contributes to solving the scientific problem of holistic modeling of processes and results of updating models and mechanisms of highly dynamic communication system in the field of acquiring new knowledge in the digital environment as a whole and its individual formats at the beginning of the XXI century in particular.

The study findings as to the systemic nature and paradigmatics of innovative educational communication in the digital environment allow to disclose the following key conclusions: the integrative theoretical and methodological bases of research of educational communication are defined; innovative educational communication in the digital realm is parametrized in the conditions of global quarantine restrictions; the methodological framework of modeling of innovative educational communication in the digital environment in the ontological, linguistic and cognitive planes is introduced; the macrostructure of innovative educational communication is identified as a set of linguistic-communicative and digital instrumental innovations in the systemic semantic unity of their reference correlation with substantial (ontological, epistemic, anthropological, technological) dimensions and elements of the global digital environment, the manifestation of which determines the phenomenological originality of the studied communicative sphere; the methods and tools for empirical measurability of the perlocutive effectiveness of innovative educational communication in the digital environment are introduced; experimental verification of the effectiveness of innovative educational communication in the global digital environment during the period of emergency quarantine restrictions are implemented; the principles of universality of interdisciplinary modeling of educational communication in the digital environment are identified; the anthropocentric bases of communication innovation in the field of acquiring new knowledge in the global digital environment are determined; the instrumental mechanisms of innovative educational communication in the digital environment are systematized.

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