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## **Synergetic approach in trilingua education of the Republic of Kazakhstan**

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### **Abstract**

The aim of the article is to present the results of the study of the theoretical foundations and technology of language education in the university as a new paradigm in private didactics. The results of the implementation of the synergetic approach of using the clichéd formulas in the teaching of the Russian language in the conditions of trilingualism: coordination of the lexical-thematic content of the three languages, self-management in the co-study of professional texts, the formality of linguistic, speech, communicative, professional, discursive competence.

**Keywords:** synergetics, cognitivistics, linguoculturology, evaluative lexicon, trilingual education.

# Enfoque sinérgico en la educación trilingüe de la República de Kazajstán

## Resumen

El objetivo del artículo es presentar los resultados del estudio sobre los fundamentos teóricos y la tecnología de la enseñanza de idiomas en la universidad, como un nuevo paradigma en la didáctica privada. Los resultados de la implementación del enfoque sinérgico del uso de fórmulas cliché en la enseñanza del idioma ruso en las condiciones del trilingüismo son: coordinación del contenido léxico-temático de los tres idiomas, autogestión en el estudio conjunto de textos profesionales, la formalidad de la competencia lingüística, el habla, y la competencia comunicativa, profesional, y discursiva.

**Palabras clave:** sinérgica, cognitivismo, linguoculturología, léxico evaluativo, educación trilingüe.

## 1. INTRODUCTION

In our rapidly changing world, the methodology and principles of education are being seriously changed, that, accordingly, affects the training base, educational and methodological products, the concept of combining theoretical and practical material. The transition from knowledge of centric attitudes to competence approaches leads to the expansion of the paradigm of education and upbringing in the educational system as a whole and in private didactics in particular. Theoretical aspects that influence the development trends of private didactics and the emergence of a new paradigm in linguistic education are associated with a new interpretation of humanitarian knowledge and with the emergence of such new trends in science. Theoretical and methodological basis of

research are theoretical provisions revealing the essence of “engagement”, “civic consciousness” concepts in the philosophical, sociological, psychological and pedagogical aspects; the doctrine about the full and harmonious development of the individual, systemic, synergistic, environmental, person-centered, activity approaches to education of pupils; theory of integral pedagogical process. The education system in the Republic of Kazakhstan based on the principle of continuity and succession of educational programs includes the following education levels:

- 1) Nursery education;
- 2) Primary education;
- 3) Basic secondary education;
- 4) Secondary education (general secondary education, technical and vocational education);
- 5) Post-secondary education;
- 6) Higher education;
- 7) Postgraduate education (MURDICK, et al., 2013).

Coordinated selection and presentation of educational material provides for the greater effectiveness in understanding, awareness and memorizing of the scientific concepts. Secondly, the implementation of these principles is aimed at assimilating the identity and originality of each of the three languages, reflecting the history and culture of the people

speaking Kazakh, Russian and English. In general, the synergetic methodology forms a multilingual personality with a synergistic effect, since each concept is discussed from the position of three languages. Underlying the reform of higher education in Kazakhstan, and indeed in much of the world, is the phenomenon of the synthesis of science, education, and innovation. Remember the words of a great science devotee, Professor Sergey Kapitsa.

## **2. THE SYNERGISTIC METHODOLOGY**

A synergistic approach to mixed methods research uses the inherent strengths of both types of approaches, providing researchers with a comprehensive framework for making pivotal research design decisions. Grounded in both philosophy and practice, this approach enables researchers to identify what will be researched, how it will be researched, and why the research will be undertaken in their chosen way. The synergistic methodology is aimed at studying and co-studying with students the methods for understanding and developing individual cognitive and creative activity of a person. "Synergetic, or the theory of self-organization, today seems to be one of the most popular and promising interdisciplinary approaches. The term synergetic in Greek means "joint action". Herman Haken, who first used this term, realized two meanings: first, the theory of the emergence of new properties in the whole, consisting of interacting objects, and secondly, an approach that requires cooperation from different areas for its development (KNYAZEVA, 2004). The synergetic approach is also possible in humanitarian research in the context of philosophical reflection and the

development of principles and methods of subject knowledge and in mathematical modeling, so a synergetic approach will help to understand the independence of the theory and methodology of trilingual education. The synergetic modeling methodology was studied at the Institute of Applied Mathematics named after M.V. Keldish. Analyzing the problems of social development of the world community and Russia, a new worldview, ideology, the forecast of the development of the world, G.G. Malinetsky states: "The synergetic approach implies both profound subject knowledge, and modeling, and philosophical reflection. As in Russia, the processes of self-organization in the Republic of Kazakhstan are manifested in the chaotic growth of non-state educational institutions, the ongoing privatization of universities and in a number of other not always positive phenomena in the education system. When developing the theory and practice of trilingual education, we take the works of the founders of synergetics as a basis. We begin with the general theory of the system and the ideas of VON BERTALANFFY(1969), HAKEN(1981), PRIGOZHINE(1985), including BRUSHLINSKI et al. (1991) and KNYAZEVA(2006). We deem important for us their assertions that "the whole is greater than the sum of its parts," going back to Aristotle, and the ideas of the possibilities of a person who embeds himself into society, finds the cognitive (cultural, political, etc.), food, appropriate to him, which is associated with adequate self-realization.

In our studies the key positions of synergetics were used, when some concepts, for example, chaos, which was previously considered as a negative phenomenon, in a new epoch was used by KURDYUMOV(1990) and their followers as a forerunner of renewal and a new order giving a synergistic effect. The effect of mastering frequently encountered clichés

(language stereotypes), including the words, phrases, phraseological units and educational texts, as well as associative schemes, tables, frames, etc., that accompany them as units of thinking and memory, is really aimed at the result . This is due to the fact that everything mentioned above adapt and develop the ideas of world-famous scientists, whose works provide for developing memory, creativity, literacy, and analytical thinking. The target model of the trilingual personality, capable of self-training, is necessary for the organization of knowledge management by the teacher-methodologist and for the cooperation of the teacher and student in the performance of independent and project assignments. SOLODOVA(2016) examines the educational process at hierarchical levels: the highest level - the process of post-crisis formation of higher education, meeting the requirements of the new socio-economic conditions and challenges of time; the average level assumes quality assessment. According to E.A. Solodova, "One of the current models is a model of the lower hierarchical level, describing the actual learning process, the process of mastering knowledge by the learner". For synergetics, the important property of a complex nonlinear structure is the spatio-temporal conditioning of the learning processes, the definition of the scientific foundations for the initial stage of language teaching – i.e. the basic, professionally-oriented Russian and actually professional Russian in the university. Each of these stages of instruction, will be characterized by the peculiar linguistic basis of the linguistic material under study, the age psychology of the student will also be specific. The scientific and technological innovations are changing rapidly, and it is necessary for both the author of the textbooks and for the teacher at school to take this into account. Spatial conditionality, in addition to government procurement and the entire education situation in the world, should be understood as the need for

conditions for learning at home and in an educational institution. Complex interactions of linguistics with pedagogy, age psychology, features of thinking, memory and, in general, with the human nature, his temperament and other personality traits of the students, have made it possible to apply the results of synergetic research. Self-organization refers to the processes of the emergence of macroscopically ordered space-time structures, for example, commercial and other types of universities, colleges and specialized secondary schools. They are formed in complex nonlinear systems located in conditions which are far from equilibrium, near special critical points – the so-called bifurcation points. Then on linear system can dramatically change its condition near these critical points. This can also be said about the system of education and personality formation. A change in condition can occur due to a minor effect, which is called a fluctuation (perhaps, high-quality developed training technology). This transition is often characterized as the emergence of order from chaos. V.P. Milovanov believes that the human brain acts as a generator of disasters, continuously producing a bifurcation of phase portraits. The results of realization how the brain works seem to have and have already found practical application, for example, “for the creation of computers and various automatic devices, because nothing but practice makes our knowledge perfect”. We believe that the results of these studies are important for clarifying the level of correctness of the development of the goal, the plan and, in general, the technology for teaching linguistic disciplines. MILOVANOV(2001) proposes a model of brain work 4.1.1., in which the existence of a limit cycle, coarse cells and bifurcations is analyzed as a jump with a decrease in entropy, replacing the phase of the goal production by the phase of the implementation of the goal. Hence, the activation of the brain, especially of its right hemisphere, the

systematic training of memory for memorization from 5-7 words for students of grades 5-7, 8 = 10 new terms of the science under study for high school students and students should become the rule that gives the opportunity to realize their needs. So, the future teacher and lecturer, who has learned the approaches and methods of stimulating cognitive activity and who has managed to increase motivation for learning, must and can master the methods of teachings and self-organization. The efficiency of the presented teaching methods used to introduce the new theory into the educational process can be checked not only by the traditional quantitative analysis of the learning outcomes of the discipline, but also by the mathematical model:

$$\frac{dx(t)}{dt} + Kx(t - T_3) = b(t) \quad (1)$$

The mathematical model described by this differential equation is called the zero-level model. The order parameter of such a model is the memory of the system. In equation (1), the parameter  $x$  indicates the quantitative characteristic of the information learned in the learning process (pages),  $b(t)$  - is the quantitative characteristic of the input information stream (pages / second),  $K$  - is the perception coefficient of information to the learner (1 / second),  $T_3$  - is the time lag in the perception of information by the trainees (seconds). The block diagram of the system with the memory described by the differential equation (1) has a delay link in the feedback loop, which is provided by the memory (Fig.1). To solve an equation with memory, it is necessary to specify the initial function  $\varphi(t)$  in the time interval  $t_0 - \tau(t) \leq t \leq t_0$ , which, being a parameter of the model of the model, characterizes the memory of the system accumulated before the start of the training.

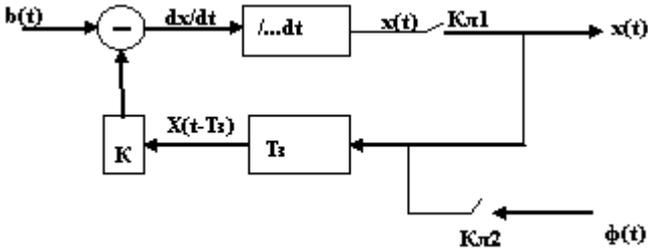


Fig.1. Block diagram of the model with memory

The system indicator of the quality of education quantifies the rate of training, the optimal duration of the lesson, the success of its assimilation with maximum consideration of the individual psychological characteristics of the trainees. This indicator depends on  $K$  - the perception coefficient and  $T_z$  - the delay time, which determines the speed of the trainee. Both coefficients are non-linear functions of  $x$ . It should be noted that both these parameters are random variables, they depend on the health state and age of the learner, on his memory, i.e. knowledge, accumulated by the time of the beginning of the learning, on the time of the year, the time of day.  $K$  is the coefficient of perception which characterizes the emotional mood of learning. Work to improve the quality of teaching the native or basic language of the specialty highlights the development of such a technique that would activate the students' speech activity. Realizing the communicative principle, (TIRIGULOVA, et al., 2015) presented an active relationship between the teachers on the one hand, and the student on the other, i.e. the student takes part in the educational process on an equal basis with the teacher. The research MAKHMUDAYEVA (2016) is innovative in the development of modern methodology and technology in the assimilation of evaluation vocabulary,

which has never been studied in a didactic aspect. This category of vocabulary has become the key category for the development of critical thinking. The student in the educational process was obliged, more precisely, stimulated, to perform the role of not the listener, but the research employee taking part in it on the same rights as the teacher. To do this, the learner must change his thinking style. First of all, he needs to develop such qualities as ability to reflect, openly express his point of view, conduct discussions, make correct decisions, and take into account the possibility of other options for solving the educational task, the problem posed. To teach a particular person to think critically, to be just, to be able to make a choice of one's own, to be responsible for their results means to form the basic qualities of a moral person and a teacher for an individual person. The formation of analytical and critical thinking in a student or undergraduate is the training of a communication culture, the ability to distinguish facts, do analysis, understand their content, be able to generalize and build a general conclusion, attract to creativity, research, and independent education. For example, the associative techniques that form the communicative competence are based on the same perception. The associative conversation is peculiar because the students should respond to every subsequent replica of the teacher, relying on key or thematic words. The organization of an associative conversation in the implementation of intralinguistic and extralinguistic factors with the use of Russian and Kazakh culture of Kazakh students presents some interest. Thus, - a conversation about the notion of "good" can be made on a chain of words: good - excellent - great - not bad - wonderful - excellent - at a good level - cool - non-chalant - adorably - great (CUDDON, 2012).

Associative chains, selected first by a teacher, and then by students, are the reference words for composing an associative conversation or a dialogue (work in pairs). Associative conversation can be made up on illustrative material as well with the help of visual-associative reception, when the picture acts as a stimulus to the utterance, associated with a picture or video-plot. So, watching videos causes a number of associations with students: good - home, family, a beloved one; excellent - the memory of a positive assessment of knowledge; beautifully executed work - salute, rest, communication in the company of friends, etc. The methodical expediency of using the method of modeling directs the production of an expression towards a particular culture, reflects the connections of words in the oral / written text. Its implementation requires the selection and presentation of ways to introduce linguistic, verbal, and pragmatic information that promotes a better understanding of the concepts under study. For synergetics, the spatio-temporal conditioning of learning processes is the important property of a complex nonlinear structure. Complex interactions of linguistics with pedagogy, age psychology, peculiarities of thinking, memory, and in general the human nature, temperament and other personality traits of the students, have made it possible to apply the results of investigation of these phenomena. Self-organization refers to the processes of the emergence of macroscopically ordered space-time structures, for example, commercial and other types of universities, colleges and specialized secondary schools. They are formed in complex nonlinear systems located in conditions which are far from equilibrium, near special critical points-bifurcation points. Near these critical points, a nonlinear system under the influence of minor influences, which are called fluctuations, can dramatically change its state. This transition is often characterized as the emergence of order from chaos,

because "education and scientific worldview, according to (MALINETSKY, 2007), are system-forming phenomena for our civilization".

The synergetic methodology is aimed at studying and co-studying the professional-original texts with students and undergraduates. To understand and develop individual cognitive and creative activity of a person, we use the interactive methods, hypertext and frame representation of knowledge both in group cognitive activity, and in the process of independent work and in the performance of project tasks. Hence, the activation of the brain functioning, especially its right hemisphere, the systematic training of memory to memorize the 10 new terms of the studied science should become the rule for the undergraduate that gives the opportunity to realize his needs. A student, a future teacher who has learned techniques and methods to stimulate cognitive activity and who has managed to increase motivation for learning, must master the methods of teaching and self-organization. The forming and learning potential of the language environment is of no less importance. It is diverse: it can perform various functions in the course of using it in the Russian language educational process: i.e. motivational, informative, communicative, and accelerative (accelerate and facilitate the learning of language and culture). In the conditions of our republic, the most important is the concept of a trilingual language environment, as well as the concept of the language environment as a set of conditions, facts of the existence and functioning of languages. As we know, in modern language education, the formation of communicative competence is established as a goal-oriented category, and in non-linguistic universities this category should be professionally - oriented at the B-2 level and professionally -

communicative at the C level. We consider professional-communicative competence as the ability and skill to carry out free professional communication, and the reflexive-evaluative sub-competence - as an ability to self-improve and carry out an assessment of one's own speech activity and the inclusion of learners in the process of cognition.

Here is an example of using of cliched formulas to form the professional speech of students-economists aiming at the development of memory, critical thinking, and the effective perception of educational material. In addition, set language formulas play an important role in the mechanism of connected speech, providing a speed of information transfer, and the uniqueness of its understanding by the participants of the communication process. As it is known, certain types of clichés in the language are a reflection of the cultural tradition of the nation, its wisdom, experience, and ideas about the world (for example, the use of proverbs, sayings, and idioms). When using different cliched formulas, one needs to know the equivalent, that is, the translation of the used words into Kazakh or English. We were convinced in the course of experimental work that the cliched formulas save the time and effort of the speakers, as they express the very essence of communicative intentions and are understandable to the interlocutor from the first presentation. Almost all linguists agree that the possibility of an absolutely complete and accurate transfer of the contents of the original in the translation of financial and economic texts is limited due to differences in linguistic systems. In addition, different traditions of nomination of concepts that have arisen in each of the languages discourage this possibility, and besides, there are differences in the phenomena of reality itself. Let's take Table 1.

Table1. Different traditions of the nomination of concepts

Kazakh language	Russian language	English language
тәуекел балы	показатель риска	risk figure
капитал нарығы	рынок капитала	capital market
салық ставкасы	ставка налога	tax rate
қосымша құн салығы	налог на добавленную стоимость	value-added tax
шығындарды өтеу	погашение убытков	utilization of losses

Table 2.The coincidence of the nomination of concepts

Kazakh language	Russian language	English language
менеджмент	менеджмент	management
макроэкономика	макроэкономика	Macroeconomics
баланс	баланс	balance
форфейтинг	форфейтинг	forfeiting
клиринг	клиринг	clearing
капитализация	капитализация	capitalization

The specificity of the translation, which distinguishes it from all other types of linguistic mediation, lies in the fact that it is intended for the full replacement of the original and that the translation receptors consider it to be completely identical to the original text. It should be noted that the principle of interrelated learning involves a coordinated selection and presentation of educational material. This principle is important because each concept is discussed from the standpoint of three languages that provides greater efficiency in understanding and memorization of scientific concepts.

### **3. CONCLUSION**

Thus, the modern paradigm is focused on the fact that the educational system must be able not only to equip the student's knowledge, but also due to the constant and rapid updating of knowledge in the era of globalization and information, generate a needs for continual self - mastery of them, seizing the means of training activities and skills self - education. Theoretical and practical significance of the research. For the first time in private didactics the implementation of the synergetic methodology for the trilingual training of specialists, both in the language university and in the non-linguistic university, is explored. The final data on the socio-cognitive and communicative-pragmatic features of pedagogical and economic texts, revealed on the material of the Kazakh, Russian and English languages, contribute to the improvement of the theory of intercultural business communication. The practical importance of the research is determined by the possibility of applying its results to developing a manual for the practical course of Kazakh, Russian and English languages, in methodological developments and manuals for other non-linguistic specialties. Thus, the synergetic methodology that integrates cognitive-communicative, competent, socio-cultural, information-technological and other particular principles into a coherent system ensures the scientific validity of the conclusions.

In such a way the synergistic approach can cover both linguistic and professional subject areas. The key concepts of synergy – self-organization and self-management – are the main characteristics of the educational process. The development of linguistic and information self-dependence of students from the perspective of the synergistic

approach, being the basis of cognitive activity, implies emphasis on self-learning and self-development of a future specialist.

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