

FORMING THE STUDENTS' SYNERGETIC THINKING IN THE SYNERGETIC REALITY OF COMMUNICATIVE SITUATIONS

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Background/Objectives: The research paper is highlighting the synergetic reality forming the students' synergetic style of thinking by developing the students' holistic abilities as invariant thinking in various life situations. The paper aims at forming the students' synergetic style of thinking in the synergetic reality of communicative situations at practical classes of learning foreign languages.

Methods: The complexity of the research aim determined the choice of the scientific methods based on the theoretical and historical analysis of philosophical, psychological, and pedagogical literature, the synergetic methodology of projecting the synergetic reality; the scientific subject involves a thorough analysis and synthesis, the analogy and generalization of advanced pedagogic experience; the observation and experimental validation.

Findings: The paper proves the significant efficiency of the synergetic reality in communicative situations as the way of forming the students' synergetic thinking; the criteria are based on the direct (students' personal structures of consciousness) and indirect indicators (creativity, accumulative research skills, originality) to ensure the reliable estimation of the students' developed levels; the synergetic reality of communicative situations is revealed; the synergetic style of thinking is added and expanded by synergetic parameters and pedagogic approaches.

Applications/Improvements: The research paper expanded pedagogic theory and practice of forming the students' synergetic thinking in the synergetic environment of education process based on integrating harmonious ties of conceptual and creative layers of the students' consciousness being added and expanded by the synergetic reality of students' communicative experience, professional and communicative competences, personal systems of values being kind regulators of synergetic parameters.

Keywords: the Education Environment, the Synergetic Style of Thinking, Communicative Situations, the Students' Consciousness, Motivation, Communicative Competences, a Competent Specialist

INTRODUCTION

The significant researchers' interest to forming the students' synergetic style of thinking is closely connected with increasing global challengers of modern reality being uncertain, paradoxical world situations to dictate people to view the situations from different perspectives searching harmony, stability and order in existing chaos. To withstand these changeable social and production conditions a modern specialist needs to develop the synergetic thinking characterized as open-mindedness. Some researchers appealing to the synergetic thinking, point out the inevitable synergetic effects appeared in different stages of education, so the synergy approach helps to project pedagogic conditions to solve the aim of the research (Dmitrienko, 2015).

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A lot of scientists state that to form the students' synergetic style of thinking (Sapronov, 2001, Danilov, 1982) it is necessary to appeal to the students' inner potential or creativity reflected in the students' consciousness as changes having positive results in students' inner development levels. It should be noticed that the pedagogic process actualizing the students' consciousness activity is based on the synergetic integration uniting the humanitarian, cultural, technical and professional knowledge segments in the organized significant education process. Here is the main function of the pedagogic synergetic reality to combine all education segments into the unique picture of further students' professional and personal development at fundamentally higher levels.

The synergetic approach is known to be the most popular and modern trend in pedagogic practice, as it involves the students' professional and personal development, but it contains some differences in the paper it may be treated as how to treat students' self-organization as a significant education process or a state of development? The authors admit the self-organizing process to be dynamic changes in the students' personal structures. But the researchers of the paper think that in both cases it will be the positive progress in the students' development. We have to clarify some terms: the synergetic reality, students' synergetic style of thinking and the pedagogic self-organization paying attention to different pedagogic approaches (the personal oriented approach, communicative and cultural approaches).

Developing students' synergetic style of thinking the authors come across with a lot of problems and contradictions existing between modern educational aims: to improve the quality of education and to prepare future specialists to be ready to invariant thinking as developing person's originality, subjectivity and creativity in modeling changeable communicative situations compared with unpredictable world events and crises situations and undeveloped practical pedagogic tools and instruments of forming students' synergetic style of thinking in real conditions of professional education; between the students' interests and motives to self-forming higher levels of the synergetic thinking and traditional pedagogic approaches of forming it in the education environment of technical university; the projecting synergetic reality in the education process and methodological inability to realize it. Sometimes it can be explained by teachers' ignoring the synergetic parameters of forming the students' synergetic style of thinking or inability to control the self-organization appeared as tendencies in inner students' planes.

So these contradictions let the authors point out the problem of the research: which synergetic parameters will determine pedagogic means of projecting the synergetic conditions as the way of students' self-organization? To solve the problem the authors appeal to the concept plan of the research.

1. CONCEPT HEADINGS

There were many attempts to project the synergetic reality in the education environment. The results are reflected in scientific records and papers as different pedagogic courses forming the person's synergetic thinking. There were many seminars developing the students' thinking as the extracurricular programs but they were mainly organized as experimental classes. It is evident that these courses did not receive wide practical implementation in education practice. Thus the problem of projecting the synergetic reality based on synergetic parameters of projecting communicative situations is still in need of further exploration by researchers and practitioners. The aim is too complicated to be solved in frames of the single education subject. But we focus on students' creative activity in the significant education process of students' communicative activity uniting various layers of students' consciousness, knowledge segments and the ways of students' self-organization improving students' education results. Teachers need theoretical knowledge and practical methods to experience approaches based on the synergetic methodology and practical synergetic tools which are necessary to be implemented at practical classes as the synergetic reality in communicative situations. Being teachers of foreign languages we refer to forming the synergetic thinking in communicative situations of foreign language communication proved to be very important for cultural, personal and professional development of a future specialist integrating technical and humanitarian knowledge segments, mental skills, personal abilities and students' professional and communicative competences.

Projecting significant pedagogic self-organization based on the synergetic reality and synergetic methodology to be applied as a way of combining the communicative reality (based on education, cultural segments of past, present and future knowledge and information segments and learning information ensuring fundamentality of students' personal and professional development levels). It is proved that any unusual way of presenting the learning information will include synergetic parameters: students usually experience inner states of uncertainty, fear and hesitation about their future professional activity, and later on the unstable states are added by incomplete and contradictory communicative situations making systems (students and teachers) searching new forms of thinking based on new personal qualities as the result of students' self-organization process (Dmitrienko, 2015).

The concept plan of the research was based on the theoretical analyses and practical results aimed at examining pedagogic principles being synergetic regulators of the synergetic conditions stimulating the self-organized students' synergetic style of thinking; the synergetic methods of projecting the synergetic conditions and validating pedagogic effects.

The problem put the tasks:

1. to make the theoretical and methodological analysis of students' educational activity in the synergetic conditions of communicative situations;

2. to develop the main principles and criteria of projecting the synergistic conditions as students' self-organized process;
3. to expand the methodological approaches to forming students' synergetic thinking and enrich them by the synergetic parameters of projecting the synergistic conditions of communicative situations

To solve these tasks a large number of studies, theoretical records and practical issues were analyzed. However the authors of the present article are quite sure that projecting the synergetic conditions of communicative situations is still in need of exploration in pedagogic practice of technical universities. The tasks of the research outline the proposed courses and programs on developing the students' subjectivity, their creative potential as the complex of pedagogic measures taken by Don State Technical University in order to enrich and improve the students' synergetic thinking and the quality of technical education. The firstly, methodical basis of projecting the synergetic reality of communicative situations can be useful for students as they open new horizons in the way of searching subjects' personal positions ensuring them stability, balance and harmony in the education process. The secondly, as communicative situations are learning models compared with real life conditions so the students get the chance to enrich their subjective experience based on new thinking (Penrose, 2003).

1.1. The Synergetic Approach of Forming the Students' Synergetic Thinking

Education crises influence the system of professional education as well, so scientists and researchers explore different ways of improving the education quality as forming higher levels of students' professional and communicative competences. The synergetic thinking being formed at technical universities can solve problems of education quality associated with fundamentality of knowledge based on the combination of humanitarian and holistic visions and views presented by non-linear facts, phenomena, professional knowledge segments and competences as interdisciplinary dialogues of rational and irrational thinking (Snow, 1985). Various education components are to be combined in the students' communicative activity where a person's conscious gets the unusual interpretation of different education segments thus developing new original visions of the world reality. The process of forming the students' synergetic style of thinking is based on different interactions and ties in various spheres of science and technologies, culture and communication, things and meanings to form the students' future perspective motives of self-development combined in a unique picture of the synergetic conditions of communicative situations at practical classes of learning foreign languages.

The synergetic thinking is known to be the multilateral, non-linear, open-minded thinking based on conceptual and creative layers of students' consciousness. The complicated terms refer to synergetic methodology are to be added by the

pedagogic principles regulating a process of forming the students' synergetic style of thinking, the criteria of evaluating resulted levels and peculiarities of the subject.

The synergetic thinking is proved to be developed as the students' creativity which is empirically expressed in communicative situations where the students determine the boundaries, stages and speed of their development. So, the students' synergetic style of thinking can be developed in pedagogic conditions of the students' communicative creativity enhancing subjective structures of students' consciousness as non-linear ways of various significant dialogues appeared due to synergetic conditions. The process provides the students with a lot of logic operations to make logical operations, come to unexpected conclusions, to consider facts and information from different points as non-linear and linear presentation for developing the students' abilities to accumulative argumentation. Appealing to forming the students' synergetic style of thinking will ensure a dual education character providing the educational feedback as the synergetic integration process uniting various systems: the students, dialogues, the information, personal opinions, the knowledge segments and professional competences with inner tendencies to self-development.

The synergetic approach is a very popular scientific explanation of many education facts and phenomena explaining and projecting the self-organized process. They are supposed to be inevitable and inborn tendencies of the system to seek balance and order in disorganization points. The self-organization is known to appear in the system due to its inner impulses and can be hardly predicted and planned if it is ignored in education process. So, different vectors of the students' self-organization can lead to positive changes as well as to destructive effects but having positive significance for the system. So, the authors of this paper state that the synergetic parameter are important for teachers and students as well and we adapted the set of communicative situations as the synergetic conditions stimulating the students' self-organization. The communicative situations are to be significant and interesting for students' age as they can be compared with real life situations where the student's consciousness receives the ground for interpretation of the knowledge segments having the non-linear characteristics and combinations. The synergetic methodology provides the students with knowledge to control and enhance their self-organization process in accordance to their peculiarities and explains the synergetic effects.

The synergetic parameters for projecting the synergetic conditions of communicative situations must include cultural, educational, professional and spiritual values of learning segments to ensure their positive results. The synergetic parameters of projected synergetic conditions with indicators (uncertainty, problems, critical views, open character of learning information, free cognitive impacts) stimulate the students' rational and irrational components of multi thinking as the holistic worldviews. So a hypnoses of the research was based on the

supposition that the synergetic conditions of communicative situations will form students' synergetic style of thinking if the synergetic parameters(contained in communicative situations) ensure the students' self-organized processes, in other words if the synergetic reality contain the synergetic parameters.

Having analyzed existing literature issues the authors state that the synergetic conditions of communicative situations are effective pedagogic instruments of developing the students' synergetic style of thinking. So, the synergetic conditions of communicative situations can be represented as the set of invariant education segments containing cultural and professional values. The pedagogic algorithm of projecting the synergetic reality in communicative situations is based on the synergetic principles; the integrity, complexity and integration providing the students' activity to form higher levels of their multi thinking. The synergetic thinking is appeared as the hierarchy of synergetic principles where the generalization and observation (Budanov, 2000) are known to be the basic ones.

These both principles are important for the research as well, as, they provide the dynamic cyclic dialogues in the synergetic conditions of communicative situations between the inner observer (when the student's thinking is based on personal or individual human peculiarities, on the subjective experience, the personal systems of values, and culture level) and the external observer (based on the general, national , cultural values and senses as the students' personal attitude to the open communicative situations) . The dialogues are important for the subjects.

1.3. The Synergetic Principles of Projecting the Synergetic Reality

The next task of the research is to design the synergetic conditions (environment) of communicative situations. The authors adapted the most important synergetic principles to the researching aims. In this case the synergetic principles are supposed to be kind pedagogic regulators of the dynamic pedagogic processes aimed at forming the students' synergetic style of thinking.

So the first synergetic principle means that the teachers are 1) to ensure homeostatic character of communicative situations; (it means that the synergetic reality of communicative situations must be interesting and real for the subjects to take part in the communicative creativity) 2) to establish the synergetic hierarchy based on the former and new connections, ties and interconnections (the principle combines new characteristics and those which were existed earlier but appeared at new fundamental levels as the results of inner students' communicative activity) 3) to stimulate the forming new essences and notions (it means that the synergetic reality of communicative situations must contain dialogues as the conditions for invariant analyzes of old and new essences contained in the communication combining segments as the variety of interconnections and ties in the students' consciousness) 3) to present nonlinear facts and knowledge segments (it means that the communicative situations must contain different synergetic components

and layers, combining facts, essences, subjective experience existed in past, present and in future communicative reality as the students' future perspective ways of personal and professional development); 4) to include the parameters of instability and chaos (it means that the synergetic conditions of communicative situations must contain incomplete facts and knowledge segments as regulators making the students express their personal attitudes thus developing the students' ability to find new ways out of the communicative situations); 5) to present the open information (it means that the content of the synergetic reality of communicative situations must be open to the students' consciousness to create new essences and ties); 6) to establish the dynamic hierarchy (it means that the synergetic reality of communicative situations must form the students' abilities to generalize the knowledge segments, creating the unique picture of invariant reality based on the synergetic parameters of order and harmony); 7) to ensure the subjective observation and regulation of different synergetic results (it means that the synergetic conditions and results must be kindly regulated during the dialogues and after them). The synergetic results can be easily diagnosed and evaluated by the teachers and the students to establish a flexible feedback of the educational process (Budanov, 2000).

Having adapted all above mentioned principles to the aims of the paper, the authors projected the synergetic conditions of communicative situations as the way of integrating technical and humanitarian knowledge segments, the students' theoretical and practical abilities and skills at different levels as already existed and the new invariant ways of presenting communicative situations and enhancing the students' inner motives and communicative activity as the pedagogic process of forming synergetic style of thinking.

Having projected the synergetic reality of communicative situations as the unity of the students' subjective experience, motives, and wants to improve their non-linear thinking by means of the above mentioned synergetic principles, the authors come to the conclusion that they are effective when the communicative situations are based on generalization of the students' values and knowledge segments, the integration of layers and links between humanitarian and technical subjects. These ties ensure the students' development in the synergetic reality of communicative situations as the students' self-realization based on their inner tendencies to self-promotion to higher and fundamental levels of the students' professional development being realized as the humanitarian principles meeting requirements and interests of the subjects (Kun, 1977).

1.4. The Theoretical Review

The interest to developing the students' synergetic thinking is restricted by the significance and complexity of the term. It is pointed out that the pedagogic essence of the term determines the qualitative characteristic of the personal and professional development, ensures the students' culture levels, personal motives and orientations

to the students' future successful professional activity and life. Different approaches defining the synergetic thinking need their further exploration in the theoretical and practical foundations to reach its identical explanation in pedagogic practice. Thus, T Kuhn analyzing modern crises situations points out the revolutionary changes in science as the criteria demanding to form the person's invariant thinking based on the person's creativity to ensure the success results in any scientific achievement or any human significant activity (Kun, 1977).

R. Penrose underlined that the synergetic thinking helps teachers and practitioners to change education positions from presenting knowledge to generating them in the students' minds (in the students' consciousness due to their personal structures activity) (Kun, 1977). It is quite evident that a future specialist is to be ready to quick changes and be flexible. To ensure the determined characteristics in education process the best way is to refer to the students' self-organized thinking realizing the student's inner tendency to gain harmony and comfort in uncomfortable and crises situations. The most important finding is that the future specialist with developed synergetic style of thinking is able to holistic perception of changeable, unpredictable and complicated world events, having creative skills and abilities to formulate the adequate response to changes in the social, production, economic environment.

Thus, the holistic purposes and methods of forming the students' synergetic style of thinking was determined by Western humanistic psychologists (Maslow, 1969, Rogers, 2002, *Frankl*, 1984.) who pointed out that the synergetic thinking was to be based on the students' self-actualization pointed out by them as the person's innate ability for the synergetic thinking.

The received analyses let the authors refer to the pedagogic methods of projecting communicative situations being the synergetic reality of the students' self-processes where the students' actualization is the basic one. The synergetic reality was projected as the students' holistic process of self-realization, self-actualization and self-organization in communicative situations based on the students' activity justifying about the growth rates of their inner potential, abilities and personal characteristics. Forming the students' self-organized synergetic style of thinking is regarded as the unit of psychological and spiritual phenomena associated with the students' self-actualization.

The next task is to analyze the characteristic features of non-classic or synergetic style of thinking. The students' synergetic style of thinking is proved to be developed in any significant education process where a lot of modeling communicative alternatives are supposed to change the events and quality of systems making the students self-forming the new characteristics of higher levels as the inner transitions and innovations as breakage phases in the student's consciousness (Kagan, 2005).

The main criteria of forming the students' non-linear style of thinking are

- 1) The students' originality of thinking (the personal feature can be analyzed and observed by the researchers and by the learners);
- 2) The students' abstractness of thinking (is closely combined with the students' ability to establish interconnection and ties between the ideal and real models of different learning events, situations and objects of communicative situations);
- 3) The students' logical rigor, (is the way of the students' formulating arguments as adapting to different changes in the communicative situations, thus developing the students' abilities to find the alternative communicative position, to find the original way of expressing new ideas ensured by the developed level of the students' communicative skills to come to the unexpected logical conclusions);
- 4) The students' inner intentions and interconnections (based on the students' abilities to establish various ties and interconnections among the nature phenomena, educational knowledge segments, personal aims and essences of different concepts);
- 5) The students' generalization (means the students' abilities to combine global ties and interdependences in different processes and phenomena);
- 6) The students' logical non-linear explanation (means the student's ability to find original combinations and explanations to the problems based on the student's invariant position as peculiarities of personal abilities, structures and tendencies to the subjectivity as the student's self-realization in communication)
- 7) The students' realistic argumentation (means the student's ability to create reasonable arguments to unpredictable, changeable and instable communicative situations paying attention to the prediction and forecasting the final results which are coordinated by internal and external states of the students' self-organization);
- 8) The students' complementarities (means the student's ability to complement the new ideas to the old situation, resulting in the student's rational and emotional, rational and intuitive thinking)

As the authors of the present paper consider the synergetic reality ensures the self-organizing process of students' synergetic style of thinking, so the principal pedagogic characteristics will be those which are easy to be analyzed and observed in the education process (during the pedagogic experiment), so the students' originality of thinking, the abstractness of communication, the logical narration of facts and events, the communicative compromises, the students' outside position in communication are considered to be the basic students' criteria of evaluating the efficiency of the students' synergetic thinking.

2. MATERIALS AND METHODS

In the synergetic education paradigm the process of modeling the synergetic reality of communicative situations is to ensure instability and crises (disorganization parameters) as the main sources of the students' self-organized synergetic style of thinking. The synergetic reality ensures developing the students' inborn and new abilities when analyzing different communicative situations and establishing ties and connections with the subjects (other education subjects (communicative partners) and the objects (the information and knowledge segments) in significant dialogues of the students' communicative creativity. The open character of communicative situations is based on the trinity synergetic methodology ensuring the students' originality, innovations, argumentation, logical rigor and other characteristics being the criteria justifying about the developed synergetic style of thinking. So, the synergetic parameters of forming the students' synergetic style of thinking are possible if the systems (the students, communication and the students' personal structures) are far from the points of equilibrium, and as in this case the systems are free and open to the non-linear information and the energy exchange being the results of different synergetic conditions ensure the students' self-organizing processes. The innovative students' characteristics appear as results of fluctuations in the inner planes of systems (being the results of disorganizations of old structures or systems based on former communicative styles, ways of expressing thoughts, the students' communicative experience, culture, communicative competences, etc.) and are added or formed in accordance to the students' personal way of development in the synergetic reality of communicative situations of the learning process (self-organization). As these processes are known to be the inevitable synergetic processes, their positive moments are being the pedagogic vectors of the students' self-development, the teachers' pedagogic forecasting program of education effects and predicting communicative results. The synergetic conditions of projecting the pedagogic self-organized students' thinking have already been pointed out by the researches (Kagan, 2005, Knyazeva, 1994), the main findings are added and expanded by the authors of this paper during the practical pedagogic experiment as the synergetic conditions of the students self-organized synergetic thinking:

1. The old systems must overcome different crisis existed in communicative situations to become stronger. So it is a very important fact that the synergetic reality of communicative situations must be based on uncertain, incomplete or partial learning information. This principle is easily ensured in the communicative situations when the old structures of the systems are unable to cope with the demands and requirements of new essences of the communicative situations. Different crisis communicative situations ensure various fluctuations stimulating the students' self-organization.

2. In the synergetic reality of communicative situations the students have to do a lot of logical operations, analyzing combinations, making research analyses and transformations thus establishing the connections and ties combining communicative situations. The students doing the communicative transformations observe that they have mutual influences and interdependencies.
3. The new structures appeared as the result of the students' creativity in their communication activity justifying about the students' synergetic style of thinking but at first these structures of the students' consciousness must "survive" to achieve the proper stability level expressed in the students' new essences and style of thinking for the students' further self-development. This process is possible if the systems are free, open and have enough energy to exchange it with the other systems (by means of all points establishing new interconnections and interdependencies).
4. Forming the students' synergetic style of thinking is possible due to the synergetic reality based on the synergetic methodology of the trinity approach defining specific pedagogical principles and technologies. The Trinitarian methodology enhances the students' multi-level thinking as flexible communicative competences provided by synergetic conditions and making the students get new positions in communicative activity, allowing the students to consider and evaluate communicative situations from new positions.

Having stated all these synergetic sources and summing them up, we got the possibility of receiving new, more relevant pedagogic essence of "the synergetic style of thinking" based on the inner students' abilities to understand and interpret communicative situations as combinations of linear and non-linear facts and events organized and stimulated by the synergetic reality forming innovative characteristics, features and abilities providing the students with new visions and personal positions.

The self-organized synergetic style of thinking is based on the student's ability to self-development (Laurent, 2010) as a way of self - cultivating new, more viable structures and characteristics to adapt them to the multilateral reality (of past, present and future moments). Multi-level connections and ties are based on integrations of different categories and notions reflected in students' consciousness. Thus, synergetic style of thinking is a pedagogic invariant thinking being developed as the integral factors of the students' self-organization in synergetic reality of communicative situations.

Research methods are based on the synergy paradigm (Knyazeva, 2003) ensuring the fundamental characteristics of the results;

- the anthropological approach to professional education let us present the integrity of the synergetic style of thinking as appearance of new phenomena in the students' consciousness as the way of the students' adapting to the changeable world reality known as the process of identity formation;
- the synergetic approach to the synergetic reality of communicative situations contained various phenomena based on systems' tendencies to gain balance and harmony;
- the theoretical analysis and synthesis, the analogy, the process of modeling communicative situations;
- the study and generalization of advanced pedagogical experience;
- the observation and the pedagogical experiment.

3. RESULTS

As the students' synergetic style of thinking is a complicated pedagogic term so we had to appeal to criteria apparatus of evaluating effectiveness of the synergetic style of thinking. The basic criterion assessing synergetic thinking is supposed to be students' creativity which can be evaluated as the originality of thoughts and statements resulting in various changes in the students' consciousness responding to different unpredictable communicative situations. The learning material of communicative situations must be significant for "awakening" creative activity of the students' synergetic thinking. So it is necessary to point out the criteria for modeling communicative situations to ensure students' creative activity in the synergetic reality. The authors propose to use following criteria of modeling communicative situations: identity, complementation, and openness. To unite educational, communicative and mental abilities and components the authors need the criteria: conceptuality, problems and criticality. Application of these criteria is possible, if: the educational material is open (contains basis for alternatives and axioms); the communicative situations must be supplemented (supplementing in communication is usually based on the subjective meanings and subjective experience), the subjectivity (based on internal, student's creative activity), the dialogical way of communicative situations (communicative situations must stimulate the inner dialogues). However, the synergetic thinking is initiated by the synergetic reality; the students' creative activity is organized by pedagogical technologies based on the special converted content of learning segments.

The student becomes the subject of the synergetic reality in case of changing content of learning situations by adding facts, objects, phenomena, symbols, models, scientific or social conflicts and the student's self-organization is implemented in creative activity (due to activities of personal structures) forming a new system of personal meanings, and professional values (Magamadova, 1993). But paying

attention to the new place of the teacher who is situated inside or outside of the communication it is possible to change the actors' status in educational process.

In this regard, the second criterion is based on students' ability to add personal meanings and essences, as the originality determined by non-classical quantum theory of communicative complements. The effects of the synergetic reality are based on the opposite opinions, conflicts and controversial facts of communicative situations ensuring the students' self-organization.

The third criterion is the openness of the synergetic reality of communicative situations to the students' consciousness. Using this criterion the teachers can actualize non-equilibrium position in communicative situations where the students combine various paradoxical (phenomenal) facts without unambiguous interpretations as a method of cognition based on the students' critical reflection and suppositions.

The students' communicative creativity ensures "personal imperatives of the students' synergetic style of thinking" represented as a significant process of the students' activities based on constant explanation and adding significant learning facts based on semantic meanings of the phenomenon under consideration. The openness of communicative situations stimulates the students' inner tendencies to demonstrate innovative way of communication, based on integration of all learning segments.

These criteria let the teachers select pedagogic principles of forming the students' synergetic style of thinking as the cultural orientation, creativity, integration, the dialogue orientation and subjectivity.

Thus, diagnostic indicators of the synergetic thinking are specific empirical attributes that can be diagnosed using modeling communicative situations and can be defined as functioning particular diagnostic criterion of the evaluating results.

The authors appeal to three levels of developing the students' synergetic thinking based on activities of personal structures of consciousness – low, medium, high. Each level has different indicators, justifying about various degrees of the developed synergetic thinking. In this regard, synergetic thinking must be diagnosed from the actual students' levels at which students are at the starting moment of the experiment at the stage of developing the synergetic thinking. Progressive scales begin evaluating students' personal starting level and resulting values. In this case the teachers can see a full picture as the results of the students' personal development occurring under the projected synergetic reality of communicative situations as pedagogic conditions of forming the synergetic style of thinking.

The experimental research has been conducted for three years (2012-2015) at Institute of Service and Business (branch) of Don State Technical University with 255 students as the total number of respondents (125 are students of the control groups and 130 students of the experimental groups). The first and second year students who learn general and professional English in the education environment

of technical Institute took part in the work. The duration of experiment research confirmed overall repeatability of received results in control and experimental groups, with some deviations without exceeding permissible values in all diagnostic methods.

So each individual student has a certain increase in the levels by criteria justifying the synergetic style of thinking in creative communication. It can be diagnosed in the middle part and at the end of the experiment if being compared with the indicators at the starting moment of the experiment that prove certain changes in degrees of the students' synergetic thinking for each student of different groups, in accordance to students' personal characteristics, personal abilities and motivations to form synergetic thinking in communicative situations.

The summarized results of the first diagnosis in the control and the experimental groups are presented by the student's t-test as the secondary method of statistical processing of the experimental data.

The basic formula is

$$t = \frac{(M1 - M2)}{(D1 - D2)},$$

where M1 is the mean value as the index of the students' indicators at the beginning of the experiment;

M2 - is the average value of the index at the end of the experiment;

D1 - is the mean-standard deviation of the sample,

D2 is the mean square (standard) deviation of the sample (at the end of the experiment).

By means of the equations the index t was calculated for all the scales, for both samples of experimental and control groups. For the given number of freedom degrees (in the control groups is 40, and at the experimental is 32) and the probability of error tolerance is $\alpha < 0.05$ where value t is about 2.02 and 2.04 respectively. The calculated values of t are exceeded in the both samples on the two scales: in the scale of creativity and in the scale of flexibility in communicative situations while the originality has not exceeded the previous scales.

4. DISCUSSION

The problem of forming the synergetic style of thinking is supposed to be a complicated pedagogic task that can be hardly implemented without understanding close interconnections and ties existing among progressive tendencies of the synergetic thinking based on the synergetic approach to education and innovations in pedagogical practice including socio-cultural trends and values of foreign language communication, cultural and professional value orientations in different modern educational environments of technical university, the social and cultural environment influencing holistic education results. The synergetic reality

TABLE 1: DYNAMIC DEVELOPMENT OF STUDENTS' SYNERGETIC STYLE OF THINKING

<i>Scale</i>	<i>The Start of Experiment</i>			<i>The End of the Experiment</i>			<i>Dynamic of Changing</i>		
	<i>N</i>	<i>O</i>	<i>V</i>	<i>N</i>	<i>O</i>	<i>V</i>	<i>N</i>	<i>O</i>	<i>V</i>
<i>Students</i>									
1. Value and personal orientation in communicative situations	43	37	52	54	50	64	+11	+15	+12
2. Abilities to collisions and generalization	52	46	64	57	59	71	+5	+11	+7
3. Abilities to perceive interactions and ties	62	41	59	69	56	79	+7	+15	+20
4. Flexibility and adaptability in communication	41	38	51	53	46	68	+12	+8	+17
5. Originality of communication	34	32	45	46	40	53	+12	+8	+8
6. Synergetic abilities	46	34	51	52	50	61	+12	+16	+10
7. Creativity in synergetic reality of communication	60	34	56	65	47	78	+5	+13	+13
8. The Students Self-actualization in communicative creativity	56	36	59	64	49	68	+12	+13	+10
9. Abilities to do argumentation	42	36	49	54	47	61	+12	+11	+7
10. Professional competences as criteria of professional development	35	31	46	49	45	58	+14	+14	+12

TABLE 2: THE EFFECTIVENESS OF STUDENTS' SYNERGETIC STYLE OF THINKING

<i>Scale</i>	<i>Focus group</i>					<i>Experimental group</i>				
	<i>A1</i>	<i>B1</i>	<i>L2</i>	<i>D2</i>		<i>C1</i>	<i>B1</i>	<i>G2</i>	<i>D2</i>	
1. Value and personal orientation in communicative situations	2.66	3.17	7.21	2.68	1.71	7.82	6.75	7.92	2.81	2.42
2. Abilities to collisions and generalization	2.56	3.23	2.81	3.23	4.12	3.61	6.5	8.15	3.4	2.31
3. Abilities to perceive interactions and ties	4.76	5.81	4.6.4	6.84	3.14	4.68	6.84	4.76	6.89	2.50
4. Flexibility and adaptability in communication	4.31	1.03	4.72	4.27	1.5	5.81	3.31	4.42	4.97	3.50
5. Originality of communication	3.74	1.06	3.4	7.66	2.14	4.8	3.84	8.57	7.67	3.17
6. Synergetic abilities	2.64	4.06	3.5	2.54	1.56	6.4	2.52	6.78	2.58	1.25
7. Creativity in synergetic reality	7.60	6.81	3.6	2.56	3.0	6.3	2.50	7.19	2.66	2.10
8. Self-actualization in communicative creativity	2.94	3.75	8.42	2.89	1.43	8.61	6.93	9.26	3.03	3.90
9. Abilities to argumentation	1.76	3.11	3.71	1.92	1.58	4.43	2.54	3.61	4.89	2.21
10. Professional competences as criteria of professional development	4.61	4.20	4.86	3.45	2.19	5.17	5.12	4.56	4.67	1.24

implements synergetic conditions ensuring different self-organizing processes as the effective ways of the students' professional self-development. So it determines the main trends in education activity taking into account the synergetic processes and teaching students to use self-organization. Usually the synergetic approach refers to a field of natural sciences and it is hardly applicable for humanitarian subjects but using and adapting main synergetic principles to the subject of the research the authors get the effective way of forming synergetic thinking thus proving effectiveness of the synergetic reality. As it has been stated (Andreev, 2005) "in searching new pedagogic strategies the researchers inevitably come to conceptual ideas of synergetic approach".

Having analyzed the synergetic principles like integrity uniting the humanitarian and technical potentials of modern education process and paying attention to regularities and constraints of state standards on the Discipline "Foreign Language", the synergetic reality is projected and designed to implement social order and personal students' motives in education process where future specialists are the actual creators of the synergetic reality improving their thinking at fundamentally higher levels. Therefore, synergetic reality of communicative situations can be adapted to modern requirements and conditions of the students' real motives. The students' cognitive and emotional development, the process of projecting foreign communication is based on the humanization determining that learning content should reject strict choice of differentiations based on a linear order of the narration. The results of pedagogic experiments proved the hypothesis, providing better understanding the principles; the fundamentality and generalization of technical education.

To assess levels of the formed synergetic style of thinking, the methods of assessment were picked out among the questionnaires evaluating the students' creativity (Galín, 2001), as the students demonstrated the most scored indicators of empathy and creativity in communication, the least scored indicators is the students' personal attitude to communicative situations and communicative generalization.

So we suppose that these scored features related to the synergetic style of thinking as they ensure direct and indirect indicators for:

- 1) The accumulative thinking is the student's personal ability to combine different subjects and segments in the unique picture of professional values and communicative competences;
- 2) the originality of communication is based on the students' ability to demonstrate communicative invariant solutions, and demonstrating flexibility to express thoughts in another original way as combination of different communicative positions.
- 3) The imagination is the student's ability expressed as the intuitive predicting positive results in solving different communicative situations.

- 4) The students' creativity in communication is expressed as the inner ability to provide creative performance without thinking about being creative but to be creative in communicative process.

Synergetic parameters of communicative situations ensuring forming the synergetic style of thinking are:

1. To ensure free and open character of communication;
2. To provide basis to express politeness and tolerance to other people. The communicative situation must have basis for expressing the human position (personal empathy to each of the participants, a pleasant phrase is usually a nice impulse to demonstrate a personal interest in communicative success.
3. To include brief statement of problem situations (using explanation of small events, comparisons,
4. To improve and stimulate the students imagination (using a variety of questions)
5. To actualize students' ability to imagine other participants' communicative positions, emotions and attitudes for better understanding them in the way of exchanging thoughts and changing their speech strategies.
6. To ensure grounds for personal argumentation in communicative situations as illuminating contradictions between participants of communication activity, reduce tension, and promotes critical provisions of facts, completely or partially changing student's communicative position. The most difficult stage requires a lot of knowledge, integration of all educational segments developing the students' creativity as basis of students' synergetic style of thinking.

5. CONCLUSION

In conclusion the authors point out the basic insights that were obtained; the objectives, principles and criteria of evaluating the received results were determined.

The first task was to analyze different approaches to developing the students' synergetic thinking, to clarify the key concepts and determine methodological foundations. This purpose was carried out during the multidimensional analysis that confirmed our view on the significant role of foreign communication for developing the synergetic thinking. The synergetic conditions influence the students' personal and professional development. It is noted that the main tools of developing synergetic style of thinking is the students' inner potential estimated by the students' creativity. Thus, it was found out that the philosophical function of the synergetic methodology is implemented in the context of the synergetic reality of communicative situations.

The psychological and pedagogical analysis has clarified the significant definition of the synergetic thinking and peculiarities of the students' self-

organization as humanitarian process of the students' axiological development in creative communicative activity. In the study the students' creative activity is the synergetic criteria, because it reveals the essence of the synergetic thinking from the humanistic point of view. As the result of applying the analyses the complex concepts (abilities, skills, self-organization, communicative creativity, personal qualities, the criteria of the synergetic thinking and the principles) the authors achieved the main purpose of the paper to project synergetic reality forming the students' synergetic thinking based on self-organized internal sources of personal development.

The methodological analysis of different approaches to the synergetic reality of communication identified differences in understanding synergetic style of thinking. Defining the criteria and indicators of evaluating synergetic conditions or reality and communicative means the authors get experimental verification of the theoretical models defining the sources and projecting the synergetic reality of communicative situations

The criteria (creativity, subjectivity, consistency, openness) are updated and disclosed indicators of the synergetic reality to stimulate and enhance the students' self-organized synergetic thinking (conceptual, critical, problematic) the diagnostic programs for analyzing dynamics of innovations in the students' structures of consciousness help teachers to project the synergetic reality in pedagogic practice developing adequate understanding of synergetic thinking and realizing concept of the synergetic methodology. Based on the statistically reliable data, obtained during the experimental testing the efficiency of the synergetic reality at practical classes was proved and let the authors to the following conclusions:

1. The developed synergetic reality of communicative situations meet basic requirements of the synergetic approach the students' motives and needs in increasing quality of personal and professional development, the social requirements in steady professional growth is the direct indicators of the significance the students' synergetic thinking;
2. Complexity, ambiguity and complicated character of the monitored qualities justifying about developed level of the students' synergetic thinking, but it is hardly possible to say about high levels of self-development or fundamental changes as it has been conducted in the frames of the single subject. So it is necessary to engage all subjects of education process are to take part in forming synergetic thinking. The authors are sure that it is necessary to note positive results, though the theoretical and practical findings require further exploration and testing with a greater number of participants and that will be one of the tasks of the research;
3. The marked differences in levels of the developed synergetic thinking are mainly appeared among positive values. The results prove the hypotheses

and the reached results in general testify the efficiency of the synergetic reality of communicative situations, but the research work must be continued.

4. The selected and developed diagnostic tools allow the researchers to identify synergetic parameters as the dynamics of individual student's way of developing the synergetic thinking. Therefore, diagnostic tools and actual technology of projecting synergetic reality are adequate to the research tasks and can be recommended for teachers and practitioners. Thus, the purpose, the tasks, objectives, and results of developing the students' synergetic thinking in synergetic reality of communicative situations have been confirmed.
5. The obtained results can be used for both research work and practical analyses to form synergetic reality in education environment of technical universities. Synergetic reality of communicative situations allows a teacher to design and adapt synergetic parameters as flexible educational technology in accordance to personal aims and plans.

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