



INTERACTIVE TECHNOLOGIES IN ADULT EDUCATION

Sysoeva Svitlana Oleksandrivna

Prof., Grand PhD

Head of the Scientific Research Laboratory of Education

Borys Grinchenko Kyiv University

2099823@mail.ru

Abstract. The paper deals with the interactive technologies in adults education: the definitions of “interactive learning”, “interactive technology” for adult learners, the interactivity for the adult distance learning systems, efficiency criteria and the preparatory, implementation and summation stages of the adults interactive technologies development. Development of the interactive adult learning technology is observed as the elaboration of the teacher managed open system of interconnected purposeful actions, which are undertaken by all participants of the educational process to achieve the predesigned learning result in optimal periods, taking into account the previous professional and life experience of an adult learner through using of the active learning forms and methods. It is made the conclusion that the interactive technologies in adult education are aimed at the motivated and systematic use of active learning methods and provide their harmonic introduction into the learning process. The paper deals also with the problem of the implementation of the interactive technologies in the adult learning practice. It is defined that the most acceptance of the embedding learning technology was received by such active learning forms as: a work in small groups, a common work on a project, and a case-method.

"Great goal of education - is not knowledge, but actions"

(H. Spencer)

Introduction

In modern world knowledge quickly becomes out of date. Today leaderships are hold by those people, organizations and countries that possess the most up to date information, and they know how to get and use it effectively. *New time defines new goals of education.* Achieving of *compliance of the education results with all target groups' needs*, which are provided by the education industry; it determines the quality of education in general. *Interactivity* is the only important characteristic of the modern education. Without the interactivity the process of learning “occurs in the context of dogmatic truth, knowledge control, assessment, and check of the final validity of knowledge” (Acker S.R. & McCain T.A. 1993)

According to Podobed V.I. (2000) the interactivity in education actualizes through such activities:

- *the democratisation processes:* for the democratic society it is significant, that contractual relations between equal parties, partnership's relations that require transition from the regulated, algorithmized, programmed forms, methods, and technologies of learning to the developmental, problematic, research, and search ones, which provide the strong motivation for learning, conditions for creativity and self-actualization during learning;
- *the necessity of practical problem solution of the participants' activity of the learning process:* a leading role during solving this problem, except the didactic teaching facilities, belongs to using the effective forms of pedagogical communication, which are directed to create the comfortable, stimulating atmosphere for showing respect to personality of an adult learner;

- *the tasks of the modern education*: there is new quality of the modern education, which is oriented toward the intellectual and creative development of personality, formation of a *competent personality, who is capable of innovation* and innovative perception of the modern world. The new quality of the modern education is formed not only by the acquired knowledge, attainments and skills, but the ability to their creative using, self-activity, -learning, and lifelong self-improvement. There are the ability to act within the agreed goals and tasks; the ability to agree your actions with the partner's actions (taking into consideration the opinion of another one); the ability to live together: cooperate and compromise; the ability to self-development if the competence does not correspond with the modern requirements. Today all these abilities are related to *the most important modern competence of specialist*.

Modern students, in particular those from the final courses of the bachelor and master programs, it is fully possible to subsume them under the adult people category. *The adult learning has a number of specific indications and features*, which should be taken to consideration during the planning of the learning process within the andragogic model (*Adult Education at the Turn of the Centuries 2000*). In the model *the interactive learning technologies* are advantaged, as they most effectively provide the communicative connections among the parties of the learning process, favour the strengthening of the partner relations. Often there is a question, that the same interactive technologies can be used for teaching of the learners, who are not in the "adult" category, as for the adult teaching. It is indeed so. But a methodology of their using is different: *in adult education the using of the interactive technologies is based on the andragogic model of the interactive learning*, taking into account the andragogic principles of learning and proper to them the facilities of their realization.

1. The concepts: "interactive learning", "interactive technology" for adult learners

The interactive learning is one of the modern directions of the active social-psychological study, which responds to the psychological features and the pedagogical regularities of the adult learning in a most degree. During the active learning adult enters into a dialog with a teacher, participates actively in a cognitive process, executing the creative, search, problem tasks in a pair and a group. There are different *sources of activity* of the adult human (Zmeev S.I. 2007). They are referenced to: her/his motives and needs; a natural environment, which surrounds the human; the personality of the teacher and the facilities of human work, the forms of interrelations and cooperations between the teacher and her/his learner. The factors, which stimulate activity of the participants of the learning process, are the cognitive and professional interest; the creative character of the learning-cognitive activities; the competitiveness; the gaming character of class holding; and an emotional influence of the given factors. Practically all researchers, who focus on the interactive learning issues, mark, that *the learning interactivity could not be attained without the open and benevolent relations* between the participants of the learning process, the teacher skills to use the special social-psychological, didactical and personal facilities for this purpose.

It should be underlined, today there are different definitions of the interactivity as in its methodological content as in the context of informative technological providing of the interactivity (for example, identification of the interactivity for the distance learning). A concept "interaction" originated firstly in sociology and social psychology. The theory of symbolic interactionism (a founder, the American philosopher George Herbert Mead) has such main principle as consideration of development and activities of personality, human creation of her/his "I" in the situations of communication and cooperation with other people. In psychology the interaction is ability to cooperate or be in the conversation mode, a dialog with something (for example, with a computer, a learning educational tool etc.) or with somebody (a human), and a social interaction. The social interaction is a process, in which individuals influence on other individuals through their behaviour, causing the proper reactions in the process of group communication. *Psychologists underline, that majority of the effective changes in settings, motivation and behaviour of people are easier carried out in a group*. The last decade the interactive inquiries and programs appeared on television and radio, which are directed on organization of the "live" communication, free ideas exchange with viewers and listeners.

In scientific pedagogical papers the concepts "interactivity", "interactive learning", "interactive learning methods and techniques", "interactive technologies" describe *the learning process as communication*,

cooperation, integration of collaboration of equal in rights participants, and that is why their application perspective at high school is obvious.

The concept “interactive learning” is used also in the research of the using problems of the modern information technologies in learning, the distance form of education, use of internet resources with a learning purpose, and also the electronic textbooks, reference books etc (Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenykh O.V. 2004). The modern computer telecommunications enable to the participants to enter into the “live” (interactive) dialog (written or oral) with a real partner, and also to do possible an active exchange of messages between a user and the informative system in real-time. The computer learning programs through the interactive facilities and devices provide the continuous *dialogic cooperation* between the user and a computer; enable the users to manage the learning process, to regulate a speed of material learning, and to return on the initial phases.

The concept “interactive learning” specifies such a process of learning, when joint activities in the process of cognition are used, and the knowledge is obtained conjointly through dialogue, polylogue of the learners among themselves and the teacher.

The interactive adult learning realizes subject to their interests and requests, life and professional experience, in the forms of partner’s cooperation of all actors of the educational process. *The interactive adult learning* is pointed at providing of *the common learning process*; getting knowledge, skills, abilities; gaining the necessary competencies *in joint activities in a simulated reality* that provides a high level of motivation to study, in which the participants for themselves find a field to use the acquired experience.

Thus, during the interactive learning all participants of the learning process cooperate among them, exchange information, jointly solve the problems, simulate the situations, evaluate the colleagues’ actions and their own behaviour, and merge in the real atmosphere of business collaboration to solve a number of problems according to their interests, needs and requests. Meanwhile, there is constant change of the learning activities’ forms: a game, a discussion, a work in small groups, mini lectures etc.

The main principles of the interactive learning are the following: the principle of dialogic interaction, the principle of cooperation, the principle of active role-playing and training organization of education. There is no doubt; the interactive learning is the most efficient one for achieving by a person the level of a specialist in a certain field, capable of innovations.

By the interactive learning the central place in activities of the teacher is taken *a not separate adult person as individual but a group of collaborative adult learners*, who stimulate and activate each other. The intellectual learners’ activity is stimulated in the learning competitions and in a collective true search. There is a psychological phenomena, which acts as infection (not imitation but infection), and any idea, which has come from a neighbour, can involuntarily cause an own one that could be analogous or similar to the worded idea before, and vice versa – a complete contrary one. The most complete these effects are presented *in the game and training’s learning technologies*.

The advantages of the interactive learning are determined by the following (Sysoeva, S. 2011):

1. The interactive learning allows intensifying the process of understanding, digestion and creative applying of knowledge in solving practical assignments. The efficiency is achieved due to more active involvement of adult learners not only into the process of obtaining knowledge, but also into direct using of the integrated complex of attainments.

2. The interactive learning increases motivation and adult learners’ engagement in solving training tasks. The interactive education forms the capacity of extraordinary thinking.

3. The interactive learning gives the experience of establishing contacts, interdependent axiological and conceptual relations with the world (culture, nature), people and a person himself – the experience of dialogic cognitive activity, socio-moral communicative relationships and self-cognition.

4. The interactive learning not only provides the gain of knowledge, skills, habits, work methods and communication ability, but also serves as a necessary condition for acquiring and improving professional competence (competence is a readiness to act).

5. Whereas the interactive learning allows the possibility of communicating with the teacher and other learners, cooperating in cognitive and creative activities, the monitoring of knowledge, skills and habits becomes permanent, more flexible and human.

6. One of the aims of the interactive learning is to change not only the experience and attitudes of the learners, but also the social realm, for mostly the interactive learning methods are imitation of the interactive activities found in social and state practice of democratic society.

The didactic peculiarity of the interactive adult learning is that the usual logic of teaching situations is often violated in the process of its implementation: not from theory digestion to practice, but from new experience forming to its theoretical comprehension through using.

The forms and methods of the interactive learning include heuristic conversation, presentations, discussions, brain-storming, round-table method, business game method, discussed competitions of practical works, role-playing, instructive trainings, collective solving of creative tasks, case method, group and individual practical exercises, modelling of a certain activity or situation, drafting of business plans and different programs, discussing video records including self actions records, etc.

Foreign researchers refer the above mentioned methods to the “active forms of a seminar”, noting, that each of these forms has the specific functions, its own method of preparation, organization and implementation (Situational Analysis, or Anatomy of a case-method 2002). To describe the technological steps there is used a concept "methodology" that means a battery of methods, modes of practical realization of something. The concept "Methods of the Interactive Education" is frequently met in the foreign references.

We will let our view on this issue. The learning technology includes the learning content and a battery of forms, methods, modes, procedures, and ways that aloud to achieve a planned result of the learning process. Thus, in this context the teaching forms and methods, patterns and devices are the structural units that provide effective functioning of an academic content and constitute the teaching techniques according to the goals and the planned (desired) results of the learning process, their achieving is *technologically warranted*. The leading role in any teaching techniques’ designing is played by the teacher, who according to a certain purpose, academic content, learners’ requests and abilities, chooses teaching forms, methods and patterns, defines their sequence, time and stages of involvement into the learning process in such a way as to achieve the planned guaranteed result.

It is necessary to underline, that the quality of technology realization depends on the teacher’s didactical and pedagogical skills level.

The interactive technologies in adults education are specified as such ones which ensure adults involvement into the learning process due to selection and use the whole of active teaching forms and methods that allow definite achievement of the planned result, establishment of reaction, option right, bidirectionality of communication, appropriate consideration of learners’ life and work experience. Thus, the interactive technologies in adult education are designed by the teacher from the whole of those active teaching forms, methods and patterns that ensure effective content functioning in the best way. *The technological adult learning tools should be exceptionally interactive, as the “interactivity” decreases the study period of adult human, and as a rule, it is limited.*

Thereby, the interactive learning technologies have a great educational developmental potential and provide maximal activities of adult learners in the learning process, the optimal learning period and its effectiveness.

2. The concept “interactivity” for distance adults learning systems

The form of the distance learning becomes increasingly popular for adult learning. Publications’ analysis on the interactivity of the modern information technologies shows, that this concept is an issue, especially among the distance learning teachers. *The interactivity* is interpreted as *an usual access* of somebody (a learner), who is learning now, to a page of a text through the web interface and getting some learning material from there; *a dynamic interaction* between the learner and a training system; *a characteristic of responses modality* that is a function, which depends on the answers of those learners, their answers’ content and the quality of feedback support (Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenych O.V. 2004). The system of the distance learning includes the concept “*social interactivity*” that means an individual attempt to change or improve the quality of learning interaction through the interpretation of human language, the creation of feeling of comfort and the development of the practice of the class management (Carlson R.D. & Repmen J.). There is a thought, that the interactivity can be used only when a distance program stimulates

interpersonal interaction in the following characteristics: a no-delay answer; an inconsistent access to information; an adaptation; a feedback; a right of choice; the two-directed communication. *The dynamic nature of the interactivity* is emphasized the by Merrill D., Li Z., Jones M.K. (1990): there is a requirement for the mutual adaptation of one to another, for example, the adaption of the learner and the learning technology.

The general opinion of all authors, who define the concept of the interactivity for the distance learning systems, is that the interactivity is one of the most important characteristics that should be considered during the designing and creating of the distance courses (Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenych O.V. 2004).

Thus, *the interactivity in the distance learning systems* is a specially organized pedagogical interaction between the learners and the teaching resources, or among the learners. Such pedagogical interaction in the computer developmental environment allows working with the learning materials and gives an opportunity to communicate with all participants of the learning process through the use of the modern information technologies. It *enables to reduce feelings of isolation and anonymity* that arise in the process of the distance learning, which lead often to dissatisfaction, low-quality of tasks' fulfilment in the distance learning and even rejection of the distance learning form.

A type classification of the interactivity for the distance learning system is very wide (Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenych O.V. 2004). The classification, which is based on the definition of a sender and a recipient of a message during the process of the learning interaction, consists of four main types of the interactivity: learner – learner; learner – teacher; learner – the teaching (learning) material; learner – the multimedia presentations' control modes. There are another types (which are added to the classification) of the interactivity: “learner – learning” – interaction between the learners and a content and the traditional teaching methods (a survey and a feedback) (Carlson R.D. & Repmen J.). The most attractive five levels of the interactivity according to the learning tools use (the specific telecommunication tools) are: an e-mail or asynchronous communication; a remote access; a brainstorming in real-time; text collaboration in real-time; multimedia in real-time and/or hypermedia-cooperation (Bonk C.J. & Reynolds T.H. 1997). In our opinion, the important *classification of the interactivity* for the learners of the adult learning, which is “*based on activities*” that consists of such elements: critical thinking, creative thinking, information search, information sharing, and general problem-solving?

We want to underline the role of the teacher for interactivity's realization in the distance adults learning system, and the need to expand the teacher's main functions: a teacher-assistant, a teacher- classmate, a teacher-support, and a teacher-organizer.

Since the interactivity in the distance learning system is usually considered from two points of view – *the technical one*, which is defined by selection of the interactivity tools between learner and teacher; learner and classmates; learner and learning resources and *the pedagogical point of view* that identifies the knowledge assessment method, as well as the opportunities for a pedagogical impact of the distance learning (Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenych O.V.2004). Then the *development of the interactive distance adult learning tools* should provide two aspects: an interaction with the learning resources and interpersonal interaction.

3. The effectiveness criteria of the implementation of the interactive adult learning technologies

Each adult learner takes part in the learning process with a different level of cognitive activity. Therefore, the main task of use of the interactive technologies in the adult learning is to make the active learning process as much as possible by increasing the level of cognitive activity of adults according to the learning goals' level. During the active learning an adult learner is a subject of the learning interaction; takes part in dialogs with a teacher and in polylogues with other members of the learning process; and takes part in the cognitive process actively; parallel she/he executes the creative, search, and problematic tasks, which appropriate to her/his learning interests and needs.

The following criteria of the interactive technologies effective using in adult education may be distinguished (Sysoeva, S. 2011):

- The criterion of cognitive activity (determines the level of learners' cognitive activity).

- The criterion of motivation (determines interest and involvement into new information obtaining, to what extent learning is oriented to an adult's needs and requests).
- The criterion of an active informativity (determines to what extent learning contributes to new information apprehension, how it is oriented to new information active digestion, to the possibility of correlation of new knowledge with already known facts, with a person's own experience; monitoring a person's own understanding).
- The criterion of thinking activation (determines to what extent learning invokes contemplation, systematization, classification and generalization of new information, formation of a person's own attitude to it, formulation of problems and questions for further progress in the informational and pragmatic fields).
- The criterion of cooperation (determines the level of psychological comfort, democracy and partnership in the process of learning, particularly in the "teacher-student" system, the level of mutual responsibility for learning results).
- The criterion of efficiency (determines the learners' success, permanence and profundity of the teaching material digestion; the mastering of the necessary, according to adults needs, professional and other skills and habits (general and professional competence) provided time and efforts are well-spent; the degree of learning satisfaction).

The above mentioned criteria do not only determine the effectiveness of using of the interactive adult learning, but also they outline the new opportunities, which are related to improving of the learning process by the cognitive interest strengthening and interpersonal interaction through the external dialogue in the learning process. The interpersonal communications arise as between teacher and adult learner, as among adult learners in a group and the success of the learning activities depends on quality of these communications. Use of the interactive technologies in the organization of the pedagogical interaction, as the organizational form of functioning of the learning material, becomes a powerful factor in improving the efficiency of the adult learning activities.

4. How is it possible to develop the interactive technology for the adult learning?

Development of the interactive adult learning technology is the elaboration of the teacher managed open system of interconnected purposeful actions, which are undertaken by all participants of the educational process to achieve the predesigned learning result in optimal periods, taking into account the previous professional and life experience of an adult learner through using of the active learning forms and methods.

How to clear up the life-cycle of the interactive technology in adult education? The interactive technology comprises:

- the well defined learning results (specific knowledge, skills, habits, qualities and values of a person);
- the participants (elements) of technological chain (teacher, students, active teaching forms, methods, sources and means);
- the fixed functions of each element;
- the plan of successive engagement of the elements into the technological process (plan of teaching process);
- the manager of learning process (the teacher taking into account adult learners' needs and requests).

These constituents form a system, the aim of which is the acquirement of the desired competences by an adult learner. The life-cycle of the interactive technology in adult education undergoes the following stages (Sysoeva, S. 2011):

1. The preparatory stage: planning and predicting results. At this stage the teacher is to:
 - Get information about the learning purposes, expectations, needs, experience and learning abilities of the adult students he will work with, as well as about the learning period.
 - Define exactly the learning results (specific knowledge, skills, habits, qualities of a person – progress in professional integrity).
 - Determine the necessary amount, content and presentational sequence of the teaching material; divide the teaching material into the academic modules.
 - Define and set forth learning results for each module in the form of the achieved competences.

- According to the academic content, learners' experience and period of learning select active teaching forms, methods and techniques for each module in such a way as to make them develop the corresponding competences.

2. The implementation stage: organization of technological chain functioning.

At this stage the planned number of classes is given subsequently according to the following structure:

- Announcement of the theme (learning problem). As a rule, the topical themes and problems for adults are beyond the scope of one subject. To solve practically problematic task it is often necessary to apply skills, concepts, knowledge of the facts belonging to different academic disciplines. That's why adult education often extends beyond one subject and demands the respective broad theoretical and practical knowledge from a teacher. More than that, in any learning problem definition it is essential to consider the previous preparation and experience of adult learners (it may be different for different learners), to know gaps in their knowledge. In adult education the contemplation of the learning problems arising from the learners' own experience and needs (as prescribed by the class theme) proves to be the most effective one.

- Presentation of the necessary knowledge, skills formation on the reproductive level. The peculiarity of adults education is that the groups of learners are of different age, have different cognitive abilities and degree of training before the perception of new material. That's why at this stage it is necessary to foresee didactic load of all the learners by means of: the organization of activities as a whole and by the elements (it can be parallel to the knowledge presentation on the "demonstration-explanation" principle); the organization of skills drill under the simplified conditions; the organization of self-practising with constant reaction and teacher's appraisal.

- Change-over to exploratory, productive learning activity. At this stage according to the purpose and content of the class the teacher is to use active learning forms and methods: analysis of various problematic situations, solving specific tasks in small groups, imitating modelling, business games, discussions, etc. At this stage the analysis of the learner's activity by the teacher and by the group, as well as the learner's self-analysis of his own learning activity, is of a great importance. The procedure of analysis and self-analysis should be directed to the evaluation of the competences acquired by the adult learners (planned as the learning result for the given academic module).

- Correction of the further learning process (technological chain). At this stage fluctuation of the acquired competences quality level from the desired result is analyzed, the learning process is corrected.

Thus, *the operation of the technological chain* occurs in this way. In accordance with the plan (a technological card) a supervisor (the teacher) "includes" in the scheduled time the certain items (self, learners, learning tools etc.) that begin to act in accordance with their functions (<http://www.moi-universitet.ru>). Discharge of these actions and transition from one operation (a class phase) to another is coordinated and controlled by the supervisor. The supervisor sends, receives and processes information, that allows him throughout the educational process to know what happens at each phase of the technological chain and to be able if necessary to make timely adjustments. Every action of each element is aimed at obtaining the planned result, which together form the final result of the educational process. With obtained results learners go to the next class, in which their competence again begins to "grow" in the inclusion process into the technology. It should be emphasized, that when the learning organization is based on the technology then each participant executes the certain functions, as the technological chain does/can not have the superfluous elements. In the technology each element is important, all its actions are subordinated to the goal and aimed for achieving of the planned result. Again we emphasize, that besides the active participants (teacher, learners) in the technological chain there are the "passive" elements (methods, techniques, sources and tools of the learning), which also execute their functions. The system organization of the interaction of all elements of the educational process within the technology ensures a high probability of achieving the formulated learning goals.

3. The summation stage: analyzing the learning achievements and results.

At this stage the most important thing for an adult learner is the analysis of applicability level of the obtained skills and habits, how to make the best use of the acquired knowledge in her/his life and work.

Thus, the interactive learning technology provides not only a mechanical change of one method to another, but provides a logical transition algorithm using the active methods from one phase of the

educational process to another one to ensure its integrity and quality. Therefore, the interactive technologies in adult education are aimed at the motivated and systematic use of active learning methods and provide their harmonic introduction into the learning process.

5. The implementation of the interactive technologies in the adult learning practice

The formulated principles for the development of the interactive adult learning technologies are proven and implemented in the joint Ukrainian-British project “Preparation of the Teachers-Andragogs (Trainers) to the Training of Civil Servants at the Various Levels on the European Integration Issues” (2006 – 2007), as well as in the learning process on a Master Program at the High Pedagogical School of the Polish Teachers Union (Warsaw, Poland) (2006 – 2013), and in the learning process on a Master Program at the Boris Grinchenko Kiev University (2010 – 2013). At the phase of pilot implementation there was selected a set of methods to test each of the above formulated criteria of the effectiveness. By all criteria, the rates in groups, where the author’s approach (within the elaboration and realization of the interactive technology) was implemented, were higher than in the control groups. The most acceptance of the embedding learning technology was received by such active learning forms as: a work in small groups, a common work on a project, and a case-method.

Reference list

1. Acker S.R. & Mc.Cain T.A. (1993) The contribution of the interactivity and two-way video to successful distance learning applications: A literature review and strategic positioning. The Center for Advanced Study in Telecommunications. The Ohio State University, Columbus. Ohio.
2. Adult Education at the Turn of the Centuries (2000): Issues of Methodology, Theory and Practice. (Monographic series: Science Editor - Director JOB RW, Doctor. Ped. Sciences Podobed V.I.) in 4 volumes, ed. N. Kulyutkina, G.S. Suhobskoy. - Book 2. Psychological and Neuropsychological Foundations of Adult Education, ed. V.D. Eremeev, A.I. Kanatova. - St.: JOB RW, - p.112.
3. Bonk C.J. & Reynolds T.H. (1997) Learner Centered Web Instruction for Higher-orderer thinking, teamwork and apprenticeship/ B.Khan (Ed.) Web-Based Instruction, Englewood Cliffs. – NJ: Educational Technology Publications, - P. 167-178.
4. Carlson R.D. & Repmen J. Web-based interactivity// WebNet Journal.- 1(2).- P.11-13.
5. Gryshchenko V.I., Kudryavtseva S.P., Kolos V.V., Verenysh O.V. (2004) Distance Learning: Theory and Practice / Monograph (in Russian).- Kyiv: Publishing House “Naukova Dumka”, - p. 375.
6. Merrill D., Li Z., Jones M.K. (1990) Second generation instructional design// Educational Technology. – 30(2). P.7-15.
7. Sysoeva, S. The interactive technologies of the adult education: educational and methodological textbook / S. Sysoeva; NAPS of Ukraine, the Institute of Pedagogical and Adult Education. – K.: Publisher “EKMO”, 2011. – 320 p.
8. Situational Analysis, or Anatomy of a case-method (2002), ed. by Dr. of Sociology, Professor P. Surmina - Kiev: Center of Innovation and Development, - p. 286.
9. Technology of the Interactive Courses: Introduction.- [E-resource] <http://www.moi-universitet.ru/>
10. Zmeev S.I. (2007) Andragogics: Basic Theory and Technology of Adult Learning. - M.: PER SE.