

1.Nesterenko G. Self-Organization Technologies in Teaching // Handbook of Applied Learning Theory and Design in Modern Education (2 Volumes) / Eds: Elena Railean, Gabriela Walker, Atilla Elci, Liz Jackson. - IGI Global, 2015. – 866 p. – P.201-220.

Self-Organization Technologies in Teaching

This chapter deals with the innovative methods in education and with self-organization technologies as the best instrument of their generating, development and use.

Innovations in education – some methods that appear in the educational space for the first time, forms and technologies used by a small number of teachers in a small proportion of studies.

The main purpose of innovations is to improve the efficiency of the educational process and the quality of the resulting competencies: knowledge, skills and abilities.

Due to what factors could this purpose be achieved?

Not only by means of methods and forms of education that are more effective according to the criteria of time, cost, efforts, or finance (cost-effectiveness) or by the criteria of social efficiency: comfort and satisfaction of students. The second component of the mechanism of efficiency of educational innovations is its novelty. Novelty is always attractive. Traditional, stereotypical methods invoke the effect of habituation that leads to reduced motivation of students (and teachers) to the learning process. Innovations arouse the interest which is an additional incentive to obtain or generate knowledge.

The main problem associated with innovative teaching methods is the complexity of productive, creative activity which is the main condition of innovation emergence and implementation. Innovations very quickly “outdate”: proving their effectiveness, they are widely used in educational practice, gradually becoming a tradition, which reduces their motive, “fire” function. Thus, the next generation (cycle) of innovations often is needed. Is a typical teacher (as well as educational manager) always ready for such intensive creative activity? Probably not, and it is confirmed empirically - by not too high percentage of teachers who want to diversify educational methods.

But an endless source of new ideas for educational innovations exists. This source is **self-organization**. As a process of spontaneous, dynamic motion of the components of a socio-system, self-organization can randomly generate new (often attractive) structures, processes, and situations. For teacher, it is only necessary to see them and to understand where to direct the resonance effect in order to obtain the desired result with economizing of time, costs and efforts.

The strength and the mechanism of self-organization lie in the free flow of communications, in multiple interweaving of social networks, and in multi-variant results arising from such communications.

There are three groups of mechanisms of a team (staff) self-organization that can be used in education:

- self-organization of thoughts;
- self-organization of communication;
- self-organization of action (activity).

In the educational space self-organization is manifested in:

- 1) the thoughts and ideas of students and teachers;
- 2) interactive forms of non-linear, non-typical lessons;
- 3) the processes of interaction between members of the student community;
- 4) the free communication of teachers;
- 5) offers of teachers and students related to the optimization of educational management.

Attention of a teacher to self-organization processes in the educational environment as well as their deliberate initiation can give him / her more ideas for innovative methods of teaching than he/she would deliberately invent.

Mechanisms of self-organization work at different levels of social organisms: the individual, society, ethnic and national community, the staff of the company. Educational space is one of the systems where self-organization works, and it concerns both professional development of teachers, and communications with students. This allows developing a system of principles, guidelines and application procedures as to the:

- 1) what innovative teaching technologies, based on self-organization, are now used in national educational systems of different countries;
- 2) how to use self-organization in education today for the identification and modeling of the next generation of innovative methods for training.

The basic principles contributing of self-organization in the educational environment are the following: openness, non-linearity, polyvariety, dialogism polylogism, constructiveness of chaos, cooperative effects, resonance impact. If the teacher builds teamwork in the classroom on these principles, the processes of self-organization run more easily and actively.

Also self-organization is always associated with the level of democracy in social processes and with the level of democracy in the society in general. In a free and democratic society, the processes of self-organization run more fully and intensively inter alia in the educational environment.

Applied methods contributing to the initiation of self-organization processes in the educational space, can be divided into three groups:

1) heuristic methods in seminars and workshops - they stimulate the creativity of students - which may also provide new ideas for teaching. Examples of such techniques: brainstorming, methods of free association and key issues;

2) interdisciplinary explication - the use of methods that are traditional for other disciplines (contiguous or not) knowledge branches - but never used before in this context. For example, what has long been used in the natural sciences can provide new ideas for the social sciences Another example: Pedagogics as relatively closed, mainly conservative and methodically strictly lined up branch, and management - limited by its professional, especially administrative scopes - long time develop relatively autonomically, torn off one from other. Bibliography (scientific monographs, papers, teaching-books) in the field of educational management and management as it is have so dissimilar content, as though those books were written in different branches, with no regard to each other. It is further impossible to put aside them «mutual opening», mutual exchange by achievements: management need more system pedagogical visions for optimization of personnel development processes, and pedagogics require actual model of managerial competencies in education, which can be successfully used not only for participating in management but also for optimization of studies process and quality of education.

3) heterosis - crossing or exchange of educational ideas between countries, as in the educational systems of different countries can be used unique methods, which will be an innovation for other countries. And when in this exchange very different, even opposite techniques met - in their interaction can be born something very new and very effective. (As you know, in biology "heterosis" - genetic crossing of individuals of different species, which leads to significant functional improvement or

enhancement of quality characteristics in the offspring, to increasing of the viability of the descendants of this hybridization. The similar effect in education can be obvious advantages to all the criteria both social, and economic efficiency).

Let's distinguish four main **types of innovations in education** which involve to a certain extent both teachers and students (administration of the institution also plays an important role):

- innovative forms of teaching and learning;
- innovations in the content of teaching material;
- innovations in the management of educational institution;
- marketing of educational services.

The first type is the most technological component of innovations that could be implemented by teachers (regardless of positive or negative circumstances) without outside help. The second one to a considerable degree deals with the conceptual revolution of consciousness, new objectives of the educational process in general. To be more precise, it deals with new expectations, new "portrait" of graduating student with new personal and professional characteristics. The third type mostly depends not on the will and initiative of teachers but on the administrative frameworks and guidance. And the fourth type, despite of the importance of involving all teachers to (explicit or hidden) marketing procedures, requires radical diversification of teachers' professional activity (it is possible, but it needs additional investigation that is beyond the scope of this paper).

That is why we focus our attention on innovative forms of education which could be learned, developed and introduced into the learning process by teachers. It can be done on the base of principles of self-government, self-stimulation and self-discipline.