



Jolanta Wilsz  
*Akademia im. Jana Długosza w Częstochowie*

## SYSTEMIC APPROACH TO EDUCATION PROBLEMS

**Abstract.** Perception of inter-disciplinary character of changes occurring in the reality affects the way of thinking about education in system category. According to the system paradigm, the author supposes that our vision of the future education system should be designed on the basis of the predicted vision of future social environment formed by that education. The author is presenting the basic function of education and proves that the future education system should be strictly associated with development of man, with his or her continuous improvement, with continuous development and better and better use of individual abilities, and hence – with the perspective of continuously increasing efficiency of man's functioning, and with increasing efficiency of his or her actions aimed at the improvement of conditions in which his or her further self-realization will occur.

**Keywords:** system paradigm, education system, system category

What should affect directions of educational changes are new progressive ideas appearing in science, as well as needs and requirements of social life and market economy and, most of all, needs of individual human beings.

Ideas and concepts that should be most carefully considered are those which allow effective fulfillment of individual and social needs in the field of education that facilitates people's development and prepares them for continuous self-development, which is necessary for effective functioning in continuously changing reality; most of all in the field of occupational life which forces people to make and realize complex decisions independently, as well as to fulfill all steering functions, i.e. of a postulator, optimizer and producer.<sup>1</sup>

Hierarchical structures that constituted the basis of organization of totalitarian societies, and existed also in education, formed conditions that facilitated predominance of adaptative doctrine of education, which tried to adapt young people to the existing reality. Those structures made it impossible to introduce

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<sup>1</sup> Steering functions are more widely discussed by the author in her book titled *Mechanisms of self-regulation in education system*, Częstochowa, 1996/97.

any reforms aimed at fulfillment of needs in the field of education, expected by members of the society. Such structures imposed solutions determined by directives from above, which did not take into account any individual expectations or needs of the objects of the educational process, because they were uniform, conservative, authoritarian, etc.

Treating people as subjects of education, widely accepted nowadays, requires an integral approach to complex problems related to man, as well as comprehensive explanation and solving of such problems. That requires thinking and acting in global categories. Pedagogical ramification of the idea of subjectivity in education and upbringing is a necessity of integral education.<sup>2</sup>

Subjectivity is nowadays understood as man's right to his or her own activity, autonomy, and self-determination. Man's need for subjectivity is expressed, among others, in his or her aspirations to independence, activity, deciding about themselves, unconstrained realization of their needs, presentation of his or her own possibilities, creative development of his or her personality, and to changing their surrounding reality.

Only education that enables people to fulfill such aspirations can be called subjective education.

The idea of subjective education can be realized only when an education system has a functional structure<sup>3</sup>, because only such a structure can guarantee flexibility of the system, thanks to which, in spite of unfavourable changes in its environment, efficiency of its functioning will not decrease.

An educational system functions in an integrated and intensively changing reality which should be treated as the system's environment. The efficiency of the system is affected not only by an extent to which it can adapt to changes in its environment, but also by an extent to which it can create future reality.

Perception of inter-disciplinary character of changes occurring in the reality affects the way of thinking about education in systemic categories.

Paradigms characteristic of the nineteenth-century, traditional, conservative way of thinking, which perceived reality fragmentarily, have become out-of-date now. They deepened the centuries-old division of science into separate, mutually independent narrow fields that could only investigate fragments of reality, while they are unable to solve complex multi-disciplinary issues occurring in integrated reality.

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<sup>2</sup> Ideas of integral education appeared as long ago as in ancient times, among others, in Plato's and Quintilian's works. Further development of integrally understood education occurred in XVIII century. Integral education was propagated by J.J.Rousseau, J.H.Pestalozzi, J.F.Herbert, K.Linke, J.Devey, J.W.David, S.Hessen, and many others. In these authors' works concerning pedagogy, one can notice features of systemic thinking, in spite of the fact that the theory of systems was not yet formed in those times.

<sup>3</sup> I have discussed hierarchical and functional structure of systems in my book *Mechanisms of self-regulation in education system*, Częstochowa 1996/97, p. 97-99.

At the present, the fourth, stage of social evolution, involving the post-industrial society, a new, cybernetic and systemic paradigm appeared, because paradigms that predominated the previous two stages (a logical-philosophical paradigm, which predominated in agricultural societies, and deterministic-scientific one, which predominated in industrial societies) no longer form sufficient bases for effective solving of contemporary problems.<sup>4</sup>

A cybernetic-systemic paradigm has become widely used in computer technology, thanks to which progress in this field is so quick and intensive that it gets out control of societies. The situation can be counteracted only by activation of new social and intellectual mechanisms, thanks to which the societies will be capable of useful guidance of the technological progress and of conscious steering their own further evolution, aimed at social development, development of an individual and his or her good. The most important factor that is able to transform people and society is education.

B. H. Banathy defines the future, reformed system of education as “a new system of people’s education and development”. In his opinion, “the new system of education should be based on “new thinking” that has its roots in understanding social development and evolution, as well as in systemic and projective thinking”.<sup>5</sup> He defines education from the systemic point of view as: “a deliberately constructed, complex system of people’s activity, acting in a few systemic levels, embracing the whole society and evolving together with it, cooperating with other systems of social services, and designed to the fulfill specific social functions of upbringing, education, and development of man”.<sup>6</sup>

According to the systemic paradigm, our vision of the future education system should be designed on the basis of the predicted vision of future social environment formed by that education.

One of the conditions of creative development of social systems is the development of people who form those systems. Creative development of people functioning in social systems is possible thanks to an educational system, the “product” of which are creatively developed human beings, prepared for further, continuous creative self-development that will guarantee their efficient functioning in the changing social system and improvement of the system. The basic function of education should, therefore, be teaching and upbringing serving that goal by creating conditions that provide each pupil with creative development and preparation for further development.

To fulfill this function properly, an educational system should:

- integrate education, upbringing and development of individual people;

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<sup>4</sup> Compare B.H.Banathy, *Designing of education systems. Future visions*, Wrocław 1994, p. 34–37.

<sup>5</sup> B.H.Banathy, *Systemic designing...*, p. 33–34.

<sup>6</sup> Citation from p. 42.

- form conditions providing each pupil with active participation in the process of education;
- guarantee full self-development and self-determination to the pupils;
- create opportunities to solve real-life problems, involving all fields of human and social life;
- make allowances for individual possibilities, needs, interests, and aspirations, as well as allow full self-realization in those fields;
- provide pupils with knowledge, competence, and motivation, which allows them independent steering of their own development;
- prepare pupils for self-education, self-evaluation and self-control;
- teach pupils methods of learning, especially those concerning independent, permanent and individualized learning;
- inspire to think: critically, creatively, alternatively, perspectively, globally, and systemically;
- guarantee achievement of knowledge and ability to steer one's own life, i.e. oneself and one's environment;
- teach how to make the best possible decisions, and create opportunities to make independent decisions;
- teach how to learn and understand oneself and other people, one's environment, and mechanisms of their mutual co-existence;
- develop ability of creative, interpersonal co-operation and conflict solving skills.

The above characteristics shows that the future education system should be strictly associated with development of man, with his or her continuous improvement, with continuous development and better and better use of individual abilities, and hence – with the perspective of continuously increasing efficiency of man's functioning, and with increasing efficiency of his or her actions aimed at the improvement of conditions in which his or her further self-realization will occur.<sup>7</sup>

It results from the above that teachers functioning in the future education system should possess knowledge, competence and skills allowing them to steer their own development and development of other people. They should transfer the knowledge, competences and skills to their pupils.

Full development of people, which is thought to be the major goal of subjective education, is located in the centre of interest of humanistic psychology.

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<sup>7</sup> In other words, it can be stated that the system of education will be aimed at maximizing human abilities and achievements, to giving all people a chance to reach the heights of professionalism in the course of self-improvement and development of creative personality. This places the education system within the field of the new science called akmeology (from the Greek word *akmē*=height, summit, blossom, ripeness + Greek word *logos*=science, word), which develops rapidly in Russia.

Analysis of opinions of its representatives reveals that humanistic psychology postulates treating man as an integral entity, as an autonomous, free, active, and responsible individual that possesses a congenital ability to recognize his or her own needs and to steer his or her individual life. Humanistic psychologists emphasize the following human rights:

- the right of creative development of personality;
- the right of individual development throughout his or her whole life;
- the right to realize of one's own desires, ambitions and needs;
- the right to take actions compatible to one's individual preferences and predispositions;
- the right to self-determination and self-realization;
- the right to present one's own abilities (the right to self-creation);
- the right to make use of one's life potential;
- the right to make independent choices;
- the right to take decisions on one's own fate;
- the right of spontaneous activity;
- the right of independence;
- the right of establishing interpersonal contacts based on partnership;
- the right to change one's surrounding reality.

The vision of man, created by humanistic psychologists<sup>8</sup>, reveals functions and goals of humanistic education, marked by humanistic educators. Nowadays, thanks to the new, cybernetic-systemic, theoretical orientation, it is well known that most of the postulates raised by humanistic educators are correct, and, after specifying certain details, the postulates should be useful for the future system of education.

The image of man, revealed by the proposed systemic concept reflects real man, i.e. the man that must be to be able to exist and function. This is a qualitatively new, cohesive and integrated image of man, which is free from false stereotypes that have been functioning in human mentality until today. In the light of the stereotypes, images of man, created by psychology so far, have been trying to answer the question "What should man be like?", loose their sense in

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<sup>8</sup> This vision, however, is too idealized, which can be noticed in the assumptions that man is good by nature. Whereas, humanistic psychologists consider good and evil from the standpoint of moral and ethical values, not from the most important (for man) the standpoint of existential values. From the point of view of the systemic concept, existential values are the most important, and man's own interest is superior even to them. Everything that is compatible with this interest is good for a given man, because it restores his or her functional balance, while all things that disturb the balance by being incompatible with his or her interest are bad for him. Homeostatic functions, thanks to which people steer themselves in their own interest, aiming at achieving functional balance, introduce a distinction into human behaviour between things that disturb people's functional balance (i.e. things bad for man) and things that restore it (i.e. things good for man).

favour of a systemic concept, thanks to which, it is possible to answer the question “What is man really like?”. The question “How do people function in their reality?” can be answered on the grounds of systemic science on steering, because the science allows learning about internal steering mechanisms of human mentality. Thus, one can analyse what man can achieve thanks to his or her inner mechanisms and how to activate those mechanisms to get positive effects for them, or, in other words, how to activate processes of human development and what their results can be.

Inner development of man, also defined as man’s mental development, is commonly thought to be the same thing as the development of human personality.

Development of personality involves changing its structure and is carried out through subsequent restructuring of personality, thanks to which personality can achieve higher and higher level of organization. This process is activated when current structure of personality does not allow restoring functional balance due to unfavourable influence of the environment. What is the most favourable for man is his continuous development of personality, because if such processes no longer occur, the natural process of changing personality structures from higher to lower levels begins.

I suggest that the mechanism of development of a pupil’s personality in the course of the process of education should be approached systemically, distinguishing three kinds of situations, depending on the relationship between man and his or her environment:

- an environment friendly towards man;
- an environment neutral towards man;
- an environment unfriendly towards man.

Stimuli reaching people from friendly environment can improve his or her functional balance without any need to re-structure his or her personality or increase their steering ability<sup>9</sup>, because friendly environment in itself allows increasing in man’s influence on his or her environment, and, at the same time, increases man’s independence from his or her environment. Two situations may occur in such a case: the first one – when man is in a favourable state of functional balance, and the second one – when he or she shows disturbance of the balance. In the first situation, steering ability possessed by man satisfies him or her, because when being in favourable state of functional balance man does not need to increase his or her influence on the environment or his or her independence of the environment, which puts him or her in a better situation than the one in which he or she has achieved functional balance anyway. Thus, they do not feel a need to change anything. In the second situation, when the state of func-

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<sup>9</sup> When I write about human steering ability, I always mean also another ability: the ability to counteract loss of steering ability.

tional balance is disturbed, friendly environment itself offers man a situation improving the state of his or her disturbed functional balance, so they do not need to make any effort to re-structurize their personalities. Therefore, none of the situations described above activate mechanisms of human personality development.

Stimuli coming to people from neutral environment do not change their functional balance. In this case, too, two situations should be considered: the first one – when man is in a favourable state of functional balance, and the second one – when there are some disturbances of this balance. In the first situation, steering ability possessed by people satisfies them, because, when being in a state of functional balance, they do not need to increase their influence on the environment or their independence of the environment, and thus – mechanisms of personality development are not activated. In the second situation, when man's functional balance is disturbed, neutral environment will not help him or her restore the balance. Thus, man must activate mechanisms of internal restructuring of personality to achieve a higher level of personality organization, thanks to which he or she will increase their steering ability, and hence – their influence on the environment and their independence of the environment, which should make it possible for them to achieve a more favourable state of functional balance. Thus, only in the second situation, mechanisms of human personality development can be activated.

Stimuli reaching man from an unfriendly environment worsen the existing state of his or her functional balance. Like above, two situations should be analyzed here: the first one – when man is in a favourable state of functional balance, and the second one – when there are certain disturbances of the balance. In both situations, the environment will worsen people's functional balance. In the first situation, it can be expected that man will cope with it by activating mechanisms of inner re-structuring of his or her personality, which will allow to achieve a higher level of personality organization, and hence – greater steering abilities, greater influence on the environment, and greater independence from the environment. Thanks to that, man can manage to change the unfriendly environment into at least neutral environment, or, maybe even into friendly environment, which will allow restoration of the favourable state of the functional balance. In the second situation, when the disturbed state of man's functional balance becomes even more disturbed, there is a serious danger that man will not be able to cope with that, because his or her steering ability would have to increase very much, while even earlier they could not increase it sufficiently enough to eliminate the already existing, smaller disturbance of their functional balance. Thus, in the second situation, it is even more probable that so large an increase in one's steering ability will be impossible. Summing up the two situations described above, one can say that in the first situation, mechanisms of personality development can be activated, while in the second one, there is not



only a danger that these mechanisms will not be activated, but also that a personality regression, or, in extreme cases, total disorganization of personality structure will occur.

Analysis of the mechanisms of personality development in reference to the situations created by friendly, neutral, or unfriendly environment, results in two apparently paradoxical conclusions, namely that a friendly environment does not activate mechanisms of personality development, and that both neutral and unfriendly environment can in some cases activate such mechanisms. Conclusion that some situations occurring in unfriendly environment can activate mechanisms of personality degradation does not seem to give rise to any controversies.

Messages for educational practice, resulting from the above, indicate that, at the initial stage of education and upbringing processes, educator's influence exerted on pupils should constructively disturb their functional balance. Thus, pupils' functional balance should be initially disturbed, for example by making them aware that there is an extremely interesting practical problem, important for them and useful in their future life, the solution of which a pupil does not know. Then, pupils should be encouraged to make an attempt at solving the problem, by convincing them about advantages that can result from the solution, and about satisfaction that they can achieve in the course of creative searching for a unique solution. One can also present alternative solutions to the pupils, the solutions that have been found so far, and then point out shortcomings of the solutions, in order to provoke the pupils to finding a new, more effective solution, which they can do independently or together with other pupils. An interesting, independently postulated purpose, about the legitimacy of which the pupil is convinced, will induce in him or her strong desire to reach it. At that very time, the existing situation will disturb the pupil's functional balance. This disturbance will last until the moment in which the pupil begins to realize the purpose. The process of approaching the purpose (i.e. solving the problem) will be restoring disturbed functional balance to the pupil, and thus – provide him or her with satisfaction and a feeling of self-fulfillment.

The analysis of personality development in friendly, neutral, and unfriendly environment carried out above, allows putting forward a thesis that pupil's personality development in the process of education is activated only when it is in the pupil's interest, i.e. when it increases his or her steering ability and his or her ability to counteract loss of steering ability, as well as when it restores his or her functional balance.



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Jolanta Wilsz  
*Akademia im. Jana Długosza w Częstochowie*

## **PROBLEMY EDUKACYJNE W UJĘCIU SYSTEMOWYM**

### **Streszczenie**

Postrzeganie interdyscyplinarnego charakteru zmian dokonujących się w rzeczywistości rzutuje na sposób myślenia o edukacji w kategoriach systemowych. Według autorki zgodnie z paradygmatem systemowym wizja przyszłego systemu edukacji powinna być nakreślona w oparciu o prognozowaną wizję przyszłego otoczenia społecznego, które ta edukacja wykształtuje. Autorka prezentuje podstawowe funkcje edukacji oraz udowadnia, że przyszły system edukacji powinien być nierozzerwalnie związany z rozwojem człowieka, z jego ciągłym doskonaleniem, z procesem ciągłego rozwoju możliwości indywidualnych i coraz lepszego ich wykorzystania, a w konsekwencji z perspektywą stale wzrastającej efektywności funkcjonowania człowieka i zwiększającej się skuteczności jego działań, również w polepszaniu warunków, w których dokonywać się będzie dalsza samorealizacja człowieka.

**Słowa kluczowe:** paradygmat systemowy, system edukacji, kategorie systemowe