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# **From the Peculiarities of Processing Information in the Internet Age to Associating Teaching Methods with a Values System**

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## **Abstract**

The following new scientific statements and methods are described: (a) why it is necessary to differentiate the methods of teaching in accordance with preponderant values of the learners: pragmatic (material) values or sublime (lofty) values; (b) how to split young children in two groups: children with preponderance of pragmatic values and with preponderance of sublime values; (c) how to differentiate the methods of teaching for each of these groups; (d) what is cognitive engagement of the learners and how to achieve it at lessons for educational success in case of each of two values-homogeneous groups. The paper presents a new look at the process of education when the values of the student act like a lighthouse for the teacher at the moment of presenting material and arranging the process of education, the process of acquiring knowledge. As a result, a new psychological and educational paradigm is presented. This new paradigm expands theoretical foundations of cognitronics - a new scientific discipline aiming at compensating the negative shifts in the cognitive-emotional development of personality and society caused by stormy progress of information and communication technologies and globalization processes.

**Keywords:** cognitronics; values system; pragmatic values; sublime values; teaching methods; cognitive engagement

## **Introduction**

In the digital age, self-cognition can be easily substituted by the so-called computer cognition. Every generation born in the information society is much more skillful than the previous one as concerns the interaction with computers and has much more time to improve their skills, because since the early childhood to interact with the computers and Internet is as usual as walk and talk. The peculiarities of information processing are closely connected with the way young people perceive the world round them. Metaphorically, it may be put as follows: their perception of the world depends on the way they answer the question “What do you seek for: either pleasure or happiness?”.

Computer – child interaction excludes reflection, consideration on lofty, sublime values, excludes the language of poetry to express the beauty of the world and the beauty of interpersonal relationships. On the contrary, it evokes curiosity, giving prompt access to

informational sources of any kind and stimulates question – answer communication or short, clear comments. To be in trend, to meet the expectations means to be logical, exact, pragmatic, self-oriented. That is why, on the one hand, it can be said about the preponderance of pragmatic, material values in the moral values systems of a considerable part of young students. On the other hand, there exists another part of young students – a part with the preponderance of sublime, lofty values in their moral values systems.

Many year observations have shown that the success of educational methods may depend on the kind of moral values preponderant in the learning group: pragmatic values or sublime values. That is why some time ago the idea was born to explicitly differentiate the methods of teaching in accordance with the preponderance of pragmatic or sublime values in an academic group.

The subject of this paper is an implementation of this idea under the framework of a new scientific discipline called cognitronics (Fomichov and Fomichova, 2006 – 2012). Its first aim is explicating the distortions in the development of the personality and national cultures caused by the peculiarities of information society and globalization. The second (principal) aim of cognitronics is coping with these distortions in different fields by means of elaborating systemic solutions for compensating the negative implications for the personality and society of the stormy development of information and communication technologies and globalization processes, in particular, for creating cognitive-cultural preconditions of the harmonic development of the personality in the information society and for ensuring the successive development of national cultures and national languages.

## **Associating Teaching Methods with a Kind of a Values System**

Under the framework of cognitronics, new foundations of educational processes have been developed (Fomichov and Fomichova, 2011, 2012; Fomichova and Fomichov, 2009). We have added three new levels (Fomichov and Fomichova, 2013) to the four levels of consciousness development considered in the model proposed by P.D. Zelazo (Zelazo, 2004). The aim is to achieve early socialization and improve the feeling of responsibility and make the person think and act in terms of public good. Our key idea is to inscribe into the world's conceptual picture of the child a deep awareness of social agreements and the feeling of social responsibility *before* the transition age 11 – 12 years (before the age of conflicts and evoking sexuality).

The human being is brought up in the own culture and imbibes the spirit of the culture he/she is brought up. On the level of the every-day communication and acting, the culture is revealed in the answers to the following questions: *what you value, what you believe, and how you act*. It is well known: “For where your treasure is there will your heart be also”. It means that main values influence greatly the way a person perceives and processes the information, acquires knowledge, because the values emotionally color every cognitive process.

A cognitive process includes analysis, estimation, forecast, decision making, and it is underpinned by a system of values. An educational process under the frame of cognitronics takes into account the values of students in order to create an inspiring and creative atmosphere at the lessons. If the students share lofty ideas and sublime values, have aspiration to think and act in terms of public good and benefit to the society then it is advisable to show, for example, the beauty of mathematical solutions and equations, the beauty and value of a thought, a metaphor, to show how one and the same idea is expressed by the language of painting (“Twilight. Moon” by I. Levitan) and natural language (the moment when Alice is dozing off in the book by Lewis Carroll “Alice in Wonderland”).

If the students seek for pleasure and share the commercialized values, then their motivation is different: they take a decision here and right now without awareness of their responsibility for next generations and without gratitude to previous generations. It means that they don't consider themselves as a link between generations. In this case it is advisable to be logical, give clear solutions to the equations, do not give the so called "additional information", do not quote poetry. E.g., while explaining mathematics, try to avoid establishing the links between various languages and natural language. The atmosphere of a lesson and the way of presenting information will meet the expectations of the audience, and the process of information processing will be successful and evoke curiosity.

## **An Effective Approach to the Values Assessment**

The process of assessment is very delicate and can't be called a precise one. The main question the students have to answer to let teachers guess the direction of their way of thinking is as follows: whether it is my cup of tea. If "Yes" then whether it is good for me; if "Yes" then it evokes emotions and becomes thought and interest provoking. In case with the young, 6-8-year old children it is helpful to listen to their answers and considerations, paying special attention to the way they put the ideas, answering the following questions:

(a) where did you spend your summer holidays; (b) what is your favourite dish cooked by your Mam or Great Mam for you; (c) what do you do when it is raining outside; (d) do you remember the gift Santa Clause presented you with last Christmas? (e) Do you have free time; (f) what is your favourite book; (g) can you give an example of your brightest impression; (h) what is beauty for you? (i) when do you feel yourself happy; (j) what you like to draw?

The given answers, the way they consider, the language they use reveal the atmosphere in which they brought up, the way they view the world around, the point of their interests, the things they are impressed by (remember the song "My favourite things" from the film "Sounds of Music"). While analyzing the answers to questions, it is important to pay attention to the following things: (a) whether they like dishes cooked by the mother or take away dishes? (b) if they spend summer in one and the same place, whether they are impressed by something? (c) whether children notice the change in the weather, whether they see only dirt (for example, in early spring) or notice dripping roofs, soaked roads, bluish-grey snow, and lots of "mirroirs" scattered everywhere by the spring to make the trees prepare for the spring blooming? (d) what kind of life situations do they appreciate, what makes them think, laugh, cry, feel compassion; (e) what impressed them and what makes them excited and expired; (f) what makes them happy?

## **Splitting Children into Two Groups**

Let us start with an example. We have received two descriptions of the late autumn. The first one: "It is the time when the weather is getting colder, the day – shorter, the night – darker and longer, but there is no snow". The second one: "It is the time when the water is getting tired, and it means that the snow is near. "What is up?" – "The snow is up or perhaps down".

The first child enumerates the signs which help him to understand that the winter will come soon. He acts as a observer, as a researcher, discovering the changes and establishing the links between a cause and a consequence. The second child reveals a poetic way of observing nature, he uses a metaphor "tired water" in case he knows nothing about metaphors. It is just his way of viewing the world and establishing another kind of links, endowing everything with feelings.

The way children perceive the world influences the type of material presentation: so called poetical or scientific. In both cases the curiosity is aroused, information processing ability and sound creativity are improved. Both cases aim at paying a special attention to improving the language skills. It is possible for children to shift from one group to another if the changes in the world perception are revealed.

## **A Method of Achieving Cognitive Engagement of the Students**

*Cognitive engagement* can be defined as the process of highly motivated intellectual activity when the interest towards the subject under discussion is so strong that the students lose the track of time and, as a result, they are not tired. The students' interest determines the level of involvement. The emotional response is very close to inspiration, because they are making their own discoveries, and their mental efforts are appreciated. It helps to provide a conceptual learning environment instead of a memorization based one and enhances the motivation.

Cognitive engagement is characterized by the following aspects:

- *focused attention*; it means that within the first five minutes of a lesson the students have come to the conclusion: it is my cup of tea;
- *positive effect* (how do you feel about it); it means that the second conclusion is as follows: "it is good for me";
- *aesthetics*; it means that the way the material is presented meets the expectations of the students, it can be compared with various communicative styles: while communicating, it is better to stick to one style; in this case, it won't disappoint the partner of communication and make the conversation an easy and pleasant business; if the values of the students are clear and they are split into the groups according to their values, then it is easier to arrange the presentation either in a more pragmatic or a more poetical way (metaphorical way);
- *endurability*; it means that a student remembers a good experience and wants to repeat it;
- *novelty*; it is present at every lesson and provides intellectual and spiritual nourishment;
- *reputation, trust, and expectation*; the reputation of a teacher (his/her personal reputation and the professional one) suggests the situation when the students trust the teacher, appreciate his/her time and knowledge and act as the colleagues in the process of co-creation, still being aware of the distance between the teacher and the students, they respect this distance due to reputation of the teacher; in this case, the actions of both sides of the educational process meet the expectations of each other;
- *motivation*; the motivation of the students is closely connected with their values; the human being can be called a biological anticipatory system; everyone answers the questions: "What is good for me and how to achieve the state of complete happiness?"; but everyone defines happiness in his/her own way according to his/her understanding of values; some students are happy if they receive excellent marks; others need not only excellent marks but the awareness of intellectual and spiritual maturity, broad outlook (unconsciously, they are searching for their calling); and only in this case their level of happiness is changed.

To achieve cognitive engagement is very important. On the one hand, it is a marvel, because the teacher and the students become colleagues in the process of co-creation and making decision and keep the distance between the students and the teacher which is underpinned by trust, respect, and appreciation. On the other hand, it is a well managed process of knowledge acquisition. This process is underpinned by the described above mechanism of starting up the creative process in the heads of the students and creating at a lesson a special, thought-provoking atmosphere providing an opportunity for the most effective knowledge acquisition

and information processing. We have discovered the conditions under which this mechanism works well. The main condition is splitting students into different groups according to their values. The values are taken into account for creating an inspiring atmosphere, it is the most comfortable for knowledge acquisition. The students step by step receive serendipitous information: it is not expected but desirable and conduces to making their own discoveries.

## Conclusions

The paper presents a new look at the process of education when the values of the student act like a lighthouse for the teacher at the moment of presenting material and arranging the process of education, the process of acquiring knowledge. Four discoveries underpinning the proposed way of solving this problem are shortly described. This way is provided by the System of the Methods of Emotional-Imaginative Teaching (Fomichov and Fomichova, 2011, 2012; Fomichova and Fomichov, 2009), belonging to the constructive core of Cognitonics. The described methods have been successful tested in the course of a longitude study covering 24 years of introducing young children and adolescents to the humanities (an original educational, interdisciplinary program covers 12 years of studies, the starting age is 5 – 6 years).

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