THE RISK OF POSTPONING EARLY SOCIALIZATION OF SMART YOUNG GENERATION IN MODERN INFORMATION SOCIETY

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ABSTRACT

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. The following new scientific statements and methods are described: (a) why the problem of secure living in modern information society demands developing and realizing the methods of much earlier socialization of children than its is usually done now; (b) why it is necessary to differentiate the methods of teaching in accordance with the values of the learners; (c) how to split young children in two groups: children with preponderance of material values and with preponderance of sublime values; (d) how to differentiate the methods of teaching for each of these groups; (e) 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. As a result, a new psychological and educational paradigm is presented.

1 INTRODUCTION

Many scientists believe that in a relatively short time the increasing number of information technologies (IT) and the quality of IT will improve the artificial intelligence and make it mightier than the human intelligence [1].

If it happens, it means that the question of political power and the cognitive process itself which results in decision making will be considered in another way.

It is easy to assume that a person (regardless the age, spiritual maturity which includes the developed feeling of responsibility, intelligence maturity, which suggests the improved cognitive mechanisms of information processing) will be able to take power and influence the life of community, society, people all over the world due to his/her well-improved skills of using various IT. It may happen even with school children, because every new generation born in the information society (IS) is much more skillful than the previous one, and they have much more time to improve

their skills, because since the early childhood it is as usual as walk and talk for all the children. Regretfully, one of tragic problems of modern IS is cyber-bullying [2].

On the other hand, the curiosity and strong aspiration to discover the digital world are underpinned by the common (for their age) desire to emulate grown-ups and become as smart and powerful as grown-ups are, or even much smarter and much more powerful in comparison with the people belonging to previous generations.

Even nowadays the teachers in various countries complain that school children are smarter and more skilful as they are. It discourages the teachers and make the relationships with school children of the kind much more complicated.

The problem looks like an iceberg, and the humans in general way may become the passengers of "Titannik", because they don't expert an iceberg on the way. This paper continues the line of the articles [3 – 5]. Metaphorically speaking, the aim of this series of publications is to propose the kind and the parameters of a manoeuvre preventing the collision of our information society with the iceberg of described sort. This manoeuvre is much earlier socialization of children than it is done now throughout the world; that is, it is a way of early and deep inscription of the notion "responsibility" into the child's conceptual picture.

The described way of early children's socialization has been elaborated under the framework of Cognitonics [4]. The constructive core of Cognitonics includes the System of the Methods of Emotional-Imaginative Teaching (the EIT-system), it is underpinned by the Theory of Dynamic Conceptual Mappings (see [3 - 5]. The ideas and methods set forth in this paper are a part of the EIT-system

This paper describes four discoveries underpinning the proposed complex method of early socialization of children in modern IS. *The first discovery* is the fundamental conclusion that young children and adolescents can be attributed to one of two groups (children with preponderance of material values and children with preponderance of sublime values), and different methods of teaching should be developed and used for achieving educational success for each of these two groups.

The second discovery is an original method of splitting young children in two groups of mentioned kinds. *The third*

discovery is two developed different practical approaches to teaching allowing to achieve educational success for each of two groups. *The fourth discovery* is the proposed notion of cognitive engagement and original methods enabling a teacher to successfully reach the goals of teaching in each of two groups by means of realizing cognitive engagement of students at lessons.

2 TWO KINDS OF VALUES IMPLY DIFFERENT METHODS OF TEACHING

Under the framework of Cognitonics new foundations of educational processes have been developed. We have added three new levels to the four levels of consciousness development considered in the model of P.D. Zelazo [5,6]. 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.

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 colour 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 Cognitonics 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 arise curiosity.

3 THE MAIN PARAMETERS OF THE VALUE 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 Claus 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?

4 HOW TO SPLIT CHILDREN INTO GROUPS AND LET THEM SHIFT FROM ONE GROUP TO ANOTHER

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 the 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.

5 TESTING MATERIALS

The swiftness of establishing the conceptual ties between different thematic domains reflects the maturity of a cognitive mechanism. The process of studying and socialization aims, in particular, at constructing a great number of thematic subspaces in the world's conceptual picture of the child.

If the conceptual ties are not activated while discussing various books, stories, while analyzing information, taking a decision, then the child can't use his/her background knowledge. As a result, the processes of information processing, of taking a decision, of socialization become more complicated and very often mislead the child.

An example of constructing conceptual ties between different thematic domains at the lesson during a 20-minutes active creative work is given on Figure 1.

In order to better understand the difference between computer-dependent and computer-independent thinking, we'll consider the essence of creative thinking with the help of a scheme of constructing creative cognitive pinnacles.

Creative thinking suggests the ability of the student to create a new reality or transfigure the existing one. Computer dependent thinking means following the logic of the computer. In case of establishing the conceptual links between various application domains, the qualitative characteristic is defined by the quantity of the application domains linked together, on the one hand, and the
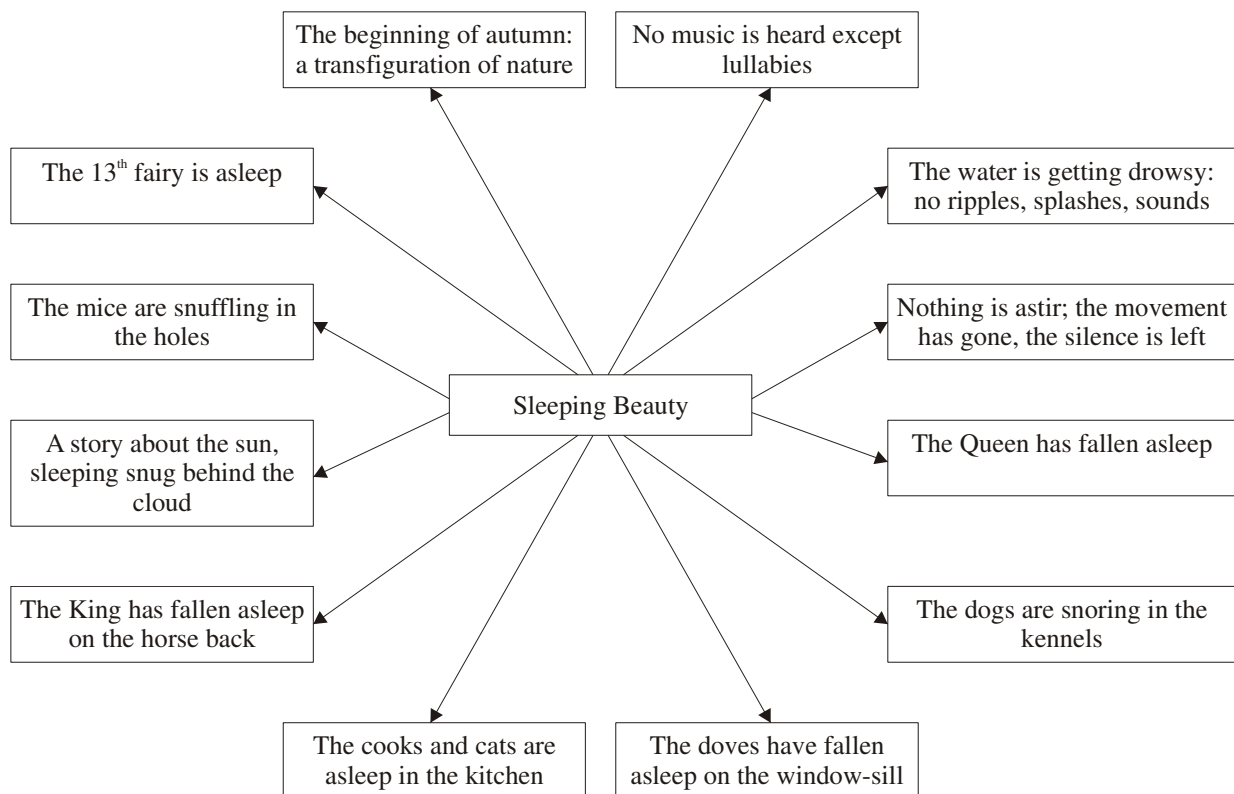

Figure1: *The speed of forming conceptual ties during one lesson of the second year of studies; the age of children is 7 years; V = 12/20 minutes = 0.60.*

Secondary Creative Pinnacles

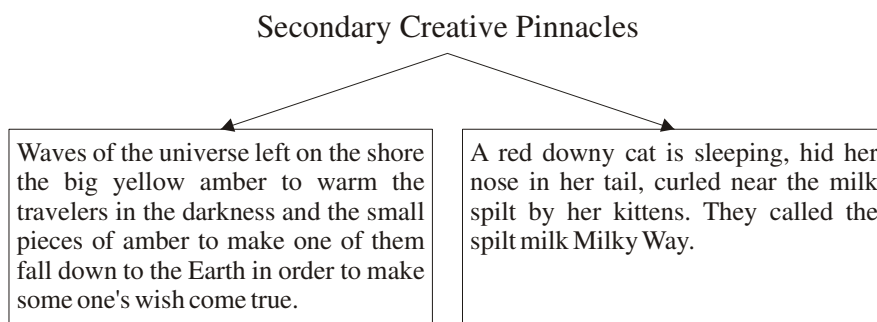| Waves of the universe left on the shore the big yellow amber to warm the travelers in the darkness and the small pieces of amber to make one of them fall down to the Earth in order to make some one's wish come true. | A red downy cat is sleeping, hid her nose in her tail, curled near the milk spilt by her kittens. They called the spilt milk Milky Way. |

Figure 2: *The examples of secondary creative pinnacles.*

remoteness of these application domains from one another (that is, the lack of the evident ties between the domains), on the other hand. A study of metaphoric thinking was carried out according to the logic described below.

Step 1. Taking into account the initial metaphor and the number of the metaphors created in accordance with the initial model, the students reach *the first creative pinnacle*. It corresponds to a new metaphor being very different from the initial one. It is a result of the unexpected coincidence of the phenomena from two application domains.

Example. Suppose that the initial metaphor is "The moon is a piece of cheese for the mice". Following this model, the young students generate a lot of metaphors, for instance, "The moon is a big round ice cream", "The moon is a pancake with a sour cream", "The moon is a piece of melon". Then one student reaches the following *first creative pinnacle*: "The moon is the silvery ball under the circus cupola. In the circus everyone is awaiting for his/her turn to appear on arena lit up with the millions of the sparkling starts scattered from that silvery ball. In the morning the moon will disappear, the stars will fade, and everyone will go for a work. The miracle happens only night".

Step 2. The *secondary creative pinnacles* designate the appearance of a principally new metaphor based on the independent creative pinnacles (see Figure 2). The initial metaphor usually is a response to the request of a teacher. Then the process of creating metaphors goes on until a principally new conceptual metaphor is created (a creative pinnacle). For the researchers, the creation of secondary creative pinnacles is much more interesting. The existence of the tendency of the emergence of the secondary creative pinnacles and the development of the process of the creation reveal the speed and the quality of the development of the cognitive mechanisms. The maturity of the cognitive mechanisms is revealed in the ability of using metaknowledge.

Unfortunately, computer dependent thinking reveals only the initial metaphor suggested by the computer and the process of creating metaphors according to a model. But it doesn't reveal creative pinnacles of any other levels, because of the lack of a vivid, lively, inspired atmosphere of discussion without computer support. Computer dependency blocks the ability of creating a new reality as a result of considering this activity as an excessive activity.

The digital reality makes the computer and IT overwhelming in numerous spheres of human's activity. It creates the illusion of a new step on the way of civilization. But the development of the civilization without spiritual development is the greatest distortion that diminishes the creative ability of the mind or transfers it into another form, a form of adjusting but not a kind of breakthrough.

There should be two clear, well-balanced main subjects of the educational process of any level: (a) computer literacy, because IT can directly contribute to human capabilities; computers and the Internet have a crucial influence on individual economic achievements and carrier development in the information society; (b) the development of the cognitive mechanisms of information processing and the improvement of the ability of metaphoric thinking, it leads to improving the serendipity.

6 HOW TO ACHIVE 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 loose 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 things:

- *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 in order 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.

7 CONCLUSION

This paper grounds the necessity of much earlier socialization of children in modern information society than it is usually done throughout the world. 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 belonging to the constructive core of Cognitonics. The described methods have been successful tested in the course of a longitude study covering 23 years of introducing young children and adolescents to the humanities.

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