

# A Contribution of Cognitonics to Secure Living in Information Society

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**Keywords:** early socialization of children, informational-aesthetic conception of developing cognitive-emotional sphere, maps of cognitive transformations, theory of dynamic conceptual mappings, methods of emotional-imaginative teaching, algorithm of resisting emotional attacks via social networks, impressionism

**Received:** December 15, 2011

*The paper grounds the necessity of much earlier socialization of children in the Internet age. The main goal is to make children (including teenagers) be aware of possible social consequences of their misuse of information and communication technologies, in particular, of the cell telephones and the Internet. An original method of early forming the cognitive subspace of moral values and social responsibility is stated. It is a part of the System of Emotional-Imaginative Teaching (the EIT-system) developed and tested by the authors during 1990s – 2000s. For describing this method, a new formal notation for representing transformations of the learners' cognitive-emotional sphere and the spectrum of information processing skills is proposed, it is called the notation of the maps of cognitive transformations. The described method of early socialization and the EIT-system as a whole are interpreted as an important component of cognitonics - a new scientific discipline. The paper also represents a new way of considering impressionism under the frame of cognitonics. An original algorithm of transforming the negative emotions (caused by the messages received from social networks) into the positive ones is proposed. This algorithm considers the possible reactions of a human (including the recommended reactions) to the emotional attacks via social networks. It is proposed to include an analysis of the kind into the program of the course "Foundations of secure living in information society".*

*Povzetek: Prispevek se ukvarja z zgodnjo socializacijo otrok pri uporabi spleta.*

## 1 Introduction

The stormy progress of the Internet since the 1990s has tremendously expanded the sphere of using the informational technologies (IT). In the developed countries, IT have reached practically every home. One of the consequences is that IT have considerably speeded-up the globalization processes. Every coin has two sides. During two decades the scholars in various countries have observed a number of negative shifts in the development of the personality, national cultures and languages caused by IT and globalization processes. These were the principal reasons for the birth of a new scientific discipline – cognitonics [7 - 10, 13 - 15]. It aims (a) at explicating the distortions in the development of the personality and national cultures caused by the peculiarities of information society and globalization and (b) at 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

informational 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.

From the standpoint of educational practice, cognitonics proposes an answer to the following question: what precious ideas and images accumulated by the mankind, at what age, and in what a way are to be inscribed into the conceptual picture of the world of a person in order to harmonize his/her intellectual and spiritually-coloured emotional development and to contribute to the successful development of national cultures and national languages.

One of the serious, large-scale negative phenomena observed mainly during last decade is that the teenagers (and some times younger children) have received the possibility to distribute any information about their peers and adults with the help of the cell telephones and the

Internet. Unfortunately, a small part of children have used this possibility for bullying, in particular, for distributing discreditable photographs and texts [17].

That is why we believe that a possible way out is to elaborate the methods of much earlier socialization of the child than it is usually done in order, on the one hand, to eliminate or considerably diminish children's aggressiveness. On the other hand, for contributing to the birth in children of the feeling of social responsibility and to the understanding by children of the severe consequences suffered by their peers and adults.

The arguments of the kind form the content of Section 2 of this paper. Section 3 describes the central ideas of an original informational-aesthetic conception of developing the cognitive-emotional sphere of the learners: young children, teenagers, and university students. These ideas are realized by our System of the Methods of Emotional-Imaginative Teaching (the EIT-system), it indicates a new way of solving the problem of much earlier socialization of children in the computer age. Section 4 sets forth the objectives and structure of the EIT-methods. Sections 6 - 7 outline the principal ideas of our approach to solving the problem of much earlier socialization of children. For this, a new graph notation is introduced in Section 5 – the notation of the maps of cognitive transformations (MCT). Each MCT describes the transformations of the cognitive-emotional sphere of the learner and of the spectrum of his/her cognitive skills achieved as a result of employing pedagogical methods. The subject of the sections 8 – 13 is an original algorithm of resisting emotional attacks realized by means of social nets. It is based on the acquaintance of the learners with the principal ideas of impressionism. Section 14 contains the conclusions.

## 2 The Need of Much Earlier Socialization of Children in Information Society

Let's consider a number of phenomena caused by IT that can be interpreted as negative shifts in the development of the personality in information society. A considerable part of information distributed via Internet is false, but this false information is "injected" into the net by concrete people. For instance, in March of 2011 a blacksmith from the island Crete posted the following anonymous e-mail message: "Bankruptcy is a matter of days and has been scheduled for the 25<sup>th</sup> of the month". This message was reproduced by dozens of Greek blogs and caused a kind of national panic [2].

Very many high school students and university students don't feel the value of a thought generated by another person and, as a consequence, use in their works the ideas, methods, models belonging to another people. Acting in this way is very easy, because the users of the Internet have access to a huge amount of informational sources physically stored far away from the user.

Twenty or more years ago the typical consequences of a conflict between a child and his/her classmates were the use of insulting nicknames or (in some schools and

some classes) the fights between the classmates. It was bad for a child involved in a conflict of the kind, but nowadays the consequences of such conflicts may be even tragic. The reason is that now the school students of even middle grades possess the well-developed skills of using e-mail, Internet, cell telephones. However, they are not socially mature and are not ready to suffer all the consequences of their deeds.

The paper [17] describes a new, tragic phenomenon of information society: cyberbullying. According to that paper, cell telephones, profile home pages and social networking service are a breeding-ground for cyberbullying in modern Japan. The moral pressure imposed due to these technical means may become unbearable for the teenager, and, unfortunately, there are known the cases when the child decides to leave the life. The other negative deeds performed with the help of modern information and communication technologies are the attacks of young hackers against computer systems of socially very significant objects and military objects.

The common reason for all considered negative deeds is that children possess very high skills of using IT but are very far from being socially mature and, as a consequence, from being aware of own social responsibility. An analogy can help to grasp the essence of such situations. A tiger-cub, while playing with a chicken, hit the chicken with his paw. The tiger-cub was not aggressive, he didn't attack the chicken, didn't want to hurt the chicken on purpose. It was just playing, the tiger-cub was not aware of the power of his paw in comparison with the weakness of the chicken, but, as a consequence, the chicken couldn't move any more.

The same happens to young children and teenagers, they can't clearly understand the severity of their actions many times multiplied by the power of modern IT. A simple negative intention is turning into a powerful tool of destroying the human's Self. And, in return, the Self of the one who becomes aware of his/her power is in danger too: he/she is not ready to suffer the consequences.

## 3 About an Informational-Aesthetic Conception of Developing Cognitive-Emotional Sphere of the Learners

The educational methods stated in this paper belong to the System of the Methods of Emotional-Imaginative Teaching (EIT-system). The core of the EIT-system was elaborated by O.S. Fomichova in the first half of the 1990s and has been expanded in the second half of the 1990s and in the 2000s. This system is underpinned by our Theory of Dynamic Conceptual Mappings (the DCM-theory). This theory is stated in numerous publications both in English and Russian, starting from the paper [3]. Both the DCM-theory and the EIT-methods form a principal part of the cognitonics constructive core.

A main component of the DCM-theory is an original informational-aesthetic conception of developing the

cognitive-emotional sphere of the learners: young children, teenagers, and university students. The central ideas of our conception are as follows.

1. It is important to actively develop a broad spectrum of information processing skills of the child, starting at least at the age of five. It applies, in particular, to associative abilities, the skill of integrating information from various sources, and the ability of establishing time-causal relationships between the events (see [4, 5]).

2. It is very important to combine the development of information processing skills with inscribing, in a systemic way, the feeling of beauty into the world's conceptual picture of the child. Proceeding from our experience accumulated during 21 years, we consider the following educational processes as the principal instruments of achieving this goal:

- early support and development of figurative (or metaphoric) reasoning;
- teaching young children (at the age of 5 – 6) very beautiful language constructions for expressing the impressions from the nature;
- a unified symbolic approach to teaching natural language (mother tongue and a foreign language), the language of painting and the language of dance [4, 10, 14].

3. Passing ahead the development of soul in comparison with the development of reasoning skills. A well-developed feeling of beauty plays an especially significant role in the realization of this idea. Besides, it is very important to be aware of the fact that children should have enough time for the development of soul: the time for contemplation, for imbibing the beauty of the nature, etc., i.e. children should have time for self-paced activity [10].

4. The principal cognitive precondition of successful (as concerns a long-term perspective) acquainting children with computer is the realization of the Thought-Producing Self of the child. It means that the child should know that his/her thoughts may have a high social significance, that is, be appreciated by his/her peers, by parents, grandparents, the teacher, etc. (see [6, 7, 10, 12]). The child should be aware of this fact before the time when the adults start to systematically acquaint him/her with computer.

5. Due to mastering modern information and communication technologies (ICT): cell telephones, internet, etc., the consequences of children's negative actions may be very severe. That is why it is necessary to find the ways of much earlier socialization of children in the modern information society in order to eliminate or considerably diminish their aggressiveness and to contribute to realizing by children the real scale of their misuse of ICT.

#### 4 Shortly About the System of Emotional-Imaginative Teaching

The principal goal of the EIT-system is to develop in young children and teenagers:

- the skills of processing symbolic information, the reasoning abilities;
- a mature, rich cognitive-emotional sphere, the ability to perceive and appreciate the beauty in all its manifestations, in particular, in the deeds of people [14];
- the ability to understand the peculiarities of the conceptual picture of the world of the communication partner;
- the understanding of the complex system of social agreements;
- the skill of grounding the own point of view, of participating in a dialogue;
- the feeling of belonging to a very long chain of previous and future generations as the principal cognitive precondition of sustainable development;
- proud as concerns the own connection with great national culture, the openness to the achievements both of national and world culture.

For achieving the indicated objectives, a collection of the interrelated educational methods and an original cross-disciplinary educational program have been developed by O.S. Fomichova. The elaborated program is intended for teaching children during twelve years, where the starting age is five to six years. The program has been personally tested in Moscow with great success by O.S. Fomichova over a period of 21 years. It includes the following series of lessons: (1) a two-year course (the age of learners is 5 to 7 or 6 to 8 years) of studying foundations of reading and speaking English as a foreign language (FL), including learning basic elements of English grammar (Present Simple and Past Simple Tenses); (2) a course on understanding the language (a part of FL) of describing the nature and feelings evoked by nature; (3) a course on understanding the symbolic language of painting; (4) a course on understanding the language of poetry (with the accent on understanding metaphors and descriptions of nature); (5) a course aimed at (a) first acquaintance with sciences and (b) developing the abilities to argument the own opinion, to raise objections, etc.; (6) a course on improving the knowledge of English grammar (during mainly the fifth year of studies); (7) the course "Foundations of secure living in information society". In fact, the lessons of courses (2) to (7) may interchange [10].

The developed program can be interpreted as a model of a system of disciplines traditionally learned in school (elementary, middle, high) and in the courses forming the humanitarian component of university education. The main thing is that this program incorporates the interacting elements belonging to different disciplines and providing the possibility to achieve in practice the goals of cognitronics as concerns the well-balanced development of the personality in information society.

## 5 The Maps of Cognitive Transformations

During last two decades, at least two graph notations have been introduced and employed for explicating the essence of educational processes. The vertices (or nodes) of a concept map represent the basic concepts of a studied discipline, and the edges (or arcs) correspond to the relationships between these concepts [1, 16]. The conceptual-visual dynamic schemes (CVD-schemes) are the marked oriented graphs introduced by V.A. Fomichov and O.S. Fomichova, in particular, in [3, 7, 11] for inventing effective teaching analogies. Such graphs establish a correspondence between the components of a piece of theoretical material to be studied and the components of a well-known or just created by the teacher but bright fragment of the inner world's picture of the learner.

One of the principal goals of cognitronics is to create the cognitive-emotional preconditions of the well-balanced, harmonic development of the personality in information society. That is why we propose a new graph notation allowing for reflecting the initial and achieved states of the cognitive-emotional sphere of the learner.

By definition, a *map of cognitive transformations (MCT)* is an oriented graph with the vertices of three classes (or types). The *A-vertices* are represented by the rectangles (or blocks) with *single contour*; the texts inside these blocks describe the theoretical materials underpinning the teaching methods. The rectangles corresponding to *B-vertices* have the *double contour*; the marks inside these rectangles are the texts describing the activity at a lesson (or lessons) either of a teacher or of the students. The *C-vertices* are represented not by the rectangles but by *the ovals*; the texts inside these ovals describe the initial or achieved state of the cognitive-emotional sphere of the learner or the state of the spectrum of the learner's cognitive skills.

The Figures 1 - 3 commented in the next sections are the examples of the maps of cognitive transformations.

## 6 The First Stage of Supporting and Developing Reasoning Skills and Creativity of the Child

The foundation of educational activities aimed at achieving the objectives of our informational-aesthetic conception of developing the cognitive-emotional sphere of the learners is the first stage of supporting and developing the reasoning skills and creativity of the child. A map of cognitive transformations realized at this stage is presented on Figure 1.

One of the distinguishing features of our approach to this problem is that it is realized at lessons of a foreign language (FL) – English, where the mother tongue of children is Russian. The use of original, specially invented analogies (being the parts of fairy-tales and thrilling stories) for teaching the English alphabet, the rules of reasoning, and the basic rules of English

grammar contributes to developing associative abilities of children at the age of 5 – 6.

**Example.** A difficult problem is to explain to very young children why the verbs in the 3rd person of Past Simple Tense have no ending "s", but the same verbs in the 3rd person of Present Simple Tense do have such ending ("reads" but "read", etc.). An interesting story from one of the previous lessons associates in the consciousness of the child the ending "s" with a bow. That story about Mr. Do and Lady Teacher is given in [11]. The teacher explains that her young students were in the Past babies and had no hair (were bald). Hence it was impossible to tie a bow. That is why verbs have no ending "s" in the 3rd person of Past Simple Tense. The 5-year-old students accept this explanation with great joy and remember it very well. As a result of having heard the stories of the kind, young children become aware of the fact that symbolic objects have the meanings pertaining to the real or fairy-tale life.

The interesting stories about the life of verbs and other words establish in the consciousness of the young child a mapping from the objects and situations of the real life to the domain of language entities (verbs, nouns, pronouns, etc.). That is why the consciousness of the young child becomes a considerable impulse to developing the ability to establish diverse analogies.

The other reason for using the lessons of FL is that (as a 21-year-long experience has shown) young children easier learn beautiful language constructions for describing the impressions from the nature than the equivalent constructions in mother tongue (see [4]). The explanation of this phenomenon is that in the first case children don't feel any contradiction with the every-day use of language.

**Example.** Let's consider a fragment from the home composition "The Winter Day", it was written in English by a six-year-old Russian speaking student Kseniya of the second year of studies in experimental groups:

*"In the picture I see a winter day. On the branches of fir-trees, pine-trees, and birches lies fluffy, white snow, glimmering in sunshine. It seems that snowdrops are covered with jewels. Near the wood there are fields with snow. On the edge of the snowfield the rill is dreaming. The snow is everywhere. Sunrays make one way through the grey, big, heavy clouds and run over top-trees. Pine-trees and fir-trees shine hoary green. The bare bushes of birches are covered with snow. It seems that the oak is with soft, white, and big leaves.*

*Suddenly someone in heaven has dashed a big cup of sunlight upon the Earth, and the big old oak has turned into a fairy King in orange magnificent gown. And around him young birches in nice gowns are accompanying their beloved King".*

## 7 A New Method of Forming the Cognitive Subspace of Moral Values and Social Responsibility

Taking into account the existence of the mentioned negative phenomena, the following new objectives for influencing the development of the personality in modern information society can be formulated.

It is necessary to start earlier than it is traditionally done to acquaint children with the very complex system of social agreements. Since this system is based on numerous symbols, the scholars need to pay more attention to developing symbolic information processing skills of young children and teenagers. In addition, it is necessary to early acquaint children with the idea that different people may have considerably different inner world's pictures (i.e. conceptual systems), and it is very important to take this into account while interacting with people. It is important to explain to young children and teenagers that practically every person has various connections with many other people. That is why a sufferer of a classmate, etc., in fact, causes the sufferer of many other people: mother, father, brothers, sisters, grand mother, grand father, etc.

The Figures 2 and 3 represent the basic components of our method. The central idea of the method is as follows. Rather often a child tries to distinguish himself/herself among his/her peers by means of emulating a bad pattern of the adults' behaviour: smoking, aggressiveness, following the formula "Might is right", etc. This applies not only to the teenagers but also to children at the age of 10 – 11. It is important to underline that the bad patterns of the adults' behaviour (drinking, etc.) most often are the consequence of misfortune, despair. Normally, children have no despair, they simply emulate the adults.

As a result of employing the stated method at lessons under the framework of the EIT-system, the child acquires (by the end of the second year of studies, at the age of 6 – 7 years) the possibility to distinguish himself/herself not by means of a deviant behaviour but with the help of mature thoughts and thoughtful behaviour.

The figure 3 shows that one of the important preconditions of employing our method during the second year of studies is the well developed figurative (or metaphoric) thinking. The scheme of creating this precondition is as follows:

Reading and discussing complex texts in English as a foreign language (FL) at the age of 5 –6

→ mastering a rich sublanguage of FL for expressing the beauty of nature and the feelings evoked by nature

→ development of figurative reasoning + development of the awareness of the social role of Natural Language

→ understanding poetical metaphors

→ creating metaphors

→ understanding the symbolic language of painting

→ development of the ability of decoding the messages conveyed by the masterpieces

→ realization of the "Thought-Producing Self" (see [6, 7, 10, 12]) and the improvement of the feeling that a person is a link in the long chain of previous and future generations.

## 8 The Role of Studying Impressionism

According to the dictionary, an illusion is a false idea, belief, or impression. One of the greatest illusions created by the Internet is the illusion of true life in the Cyberspace. One can earn money, spend free time, enjoy communication, go shopping, and even enjoy evil delight making other people harm. But an unpleasant side is that the Cyberspace lets teenagers pretend, lead an imaginary life under another imaginary name (nick).

Impression, the first impression in particular, is an ability of human intelligence. It is an idea, a feeling, or an opinion about something/somebody, especially one that is formed without conscious thought. The first impression is very often far from being true. It is caused by a detail and trifle.

Though the second impression is very often much more correct, the first one is much more bright, because it is coloured by a strong emotional response. The distortions in the perception caused by the first impression as well as the illusion that the Cyberspace is the real life are rooted in the emotional sphere of the person.

The balance between the intellectual sphere and emotional sphere of the person is destroyed, and it leads to either overestimation of the problem or underestimation of possible emotional or intellectual reaction of a person to a challenge of any kind.

Let us consider impressionism under the frame of cognitronics; more exactly, the way it helps to turn a visual feast into a splendid opportunity to understand how strong the first impression is:

- how it provides an opportunity to make children and teenagers see the possibility to view the world in a different way;

- to notice the transient appearances of one and the same object (communicative situation) depending on the season, weather, the background of the viewer, his/her mood, etc.

## 9 "Secrets" of the Impressionists

One of the "secrets" of the impressionists is hidden in their manner of painting. To enrich the colour of their canvases, the impressionists made use of what is known as division of colour and optical blending. For example, to represent a green meadow, they put little dabs of blue and yellow on the canvas which were supposed to combine to form green in the eye of the spectator.

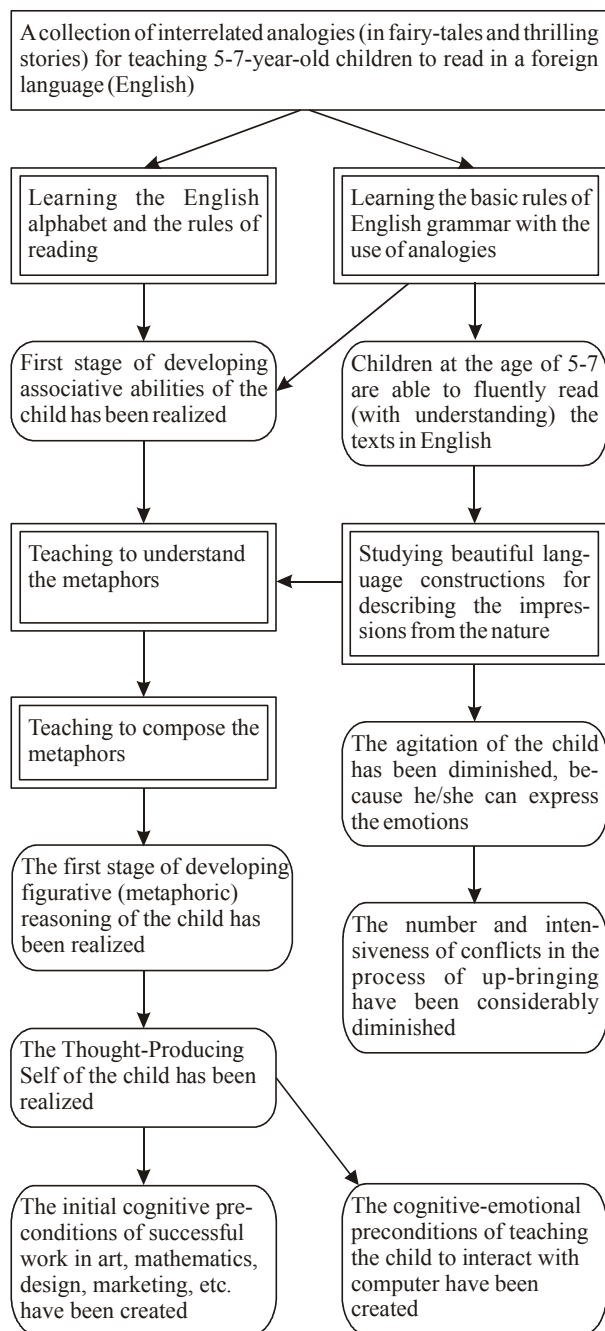


Figure 1: A map of cognitive transformations corresponding to the basic stage of developing creativity.

The impressionists, for example, Claude Monet, devoted themselves to capturing in paint the fugitive effects of light falling on objects and the play of reflections. Due to this style of painting, the impressionists manage to render the effects of sunlight, vibrations of water and air, the thousand and one reflections on water, etc.

Studying impressionism is a great pleasure. The emotional response of children can't be overestimated. In case children are asked to come very closely to the pictures, they become deeply impressed by the fact that they can't see anything except for the mixtures of dabs, a kind of colourful chaos. Watching the pictures from

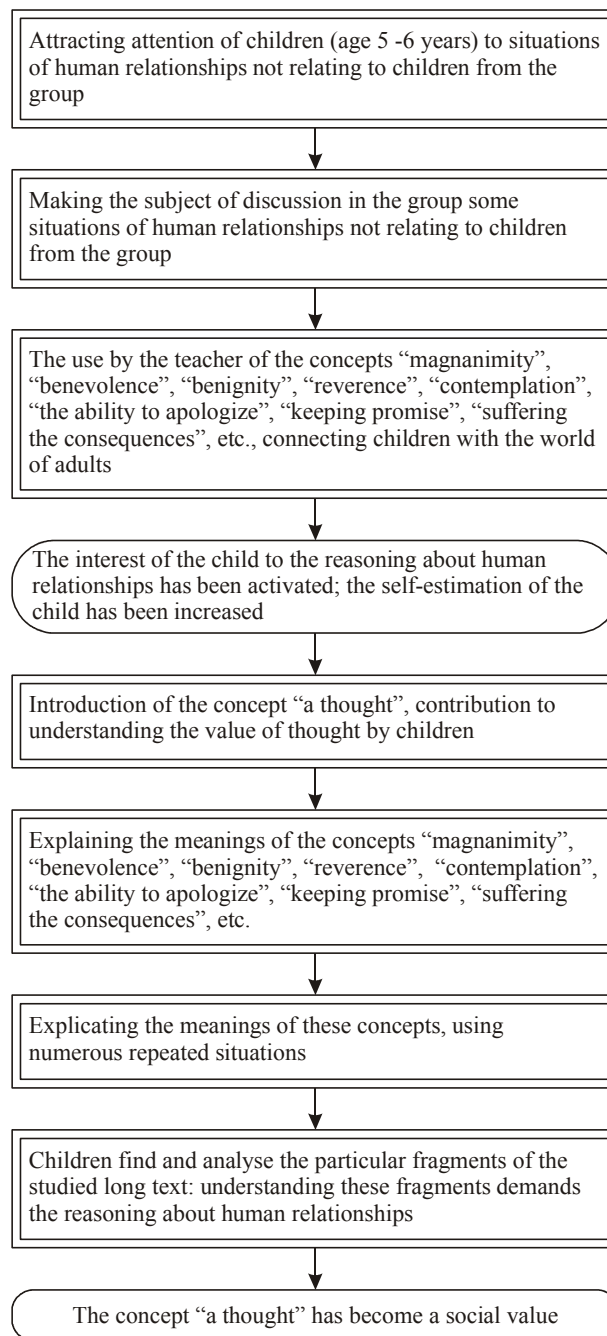


Figure 2: First year of forming a cognitive-emotional subspace of moral values and social responsibility.

some distance, children come to understanding the beauty of canvases, in fact, they make their discovery of transfiguration. An apparent transformation from the colourful chaos to the visual feast produces a deep lasting effect on the mind and feelings of the child. It is a discovery of an illusion (first impression which is false, though bright).

Take "Water lilies. Green harmony" by C. Monet. In fact, there are no white lilies there, though the water surface is dotted with the common white water lilies.

Children suppose that it is one more example of illusion: we are sure that water lilies are white, but in fact it is impossible to point at and list one white lily. They

come to understanding the effect of transparency of the water, on the one hand, and the reflections of the sky, clouds, plants edging the pond, and the whipping willows, on the other hand.

### 10 Unexpected Conclusions Derived from Studying Impressionism

The acquired experience of perception can be applied to various communicative situations at school with teacher, classmates or any kind of misunderstanding.

When a child or a teenager is at sea or in a fix, he/she is sure that everything is “black”. But the idea that he or she hasn’t see pure white lilies on the canvas makes

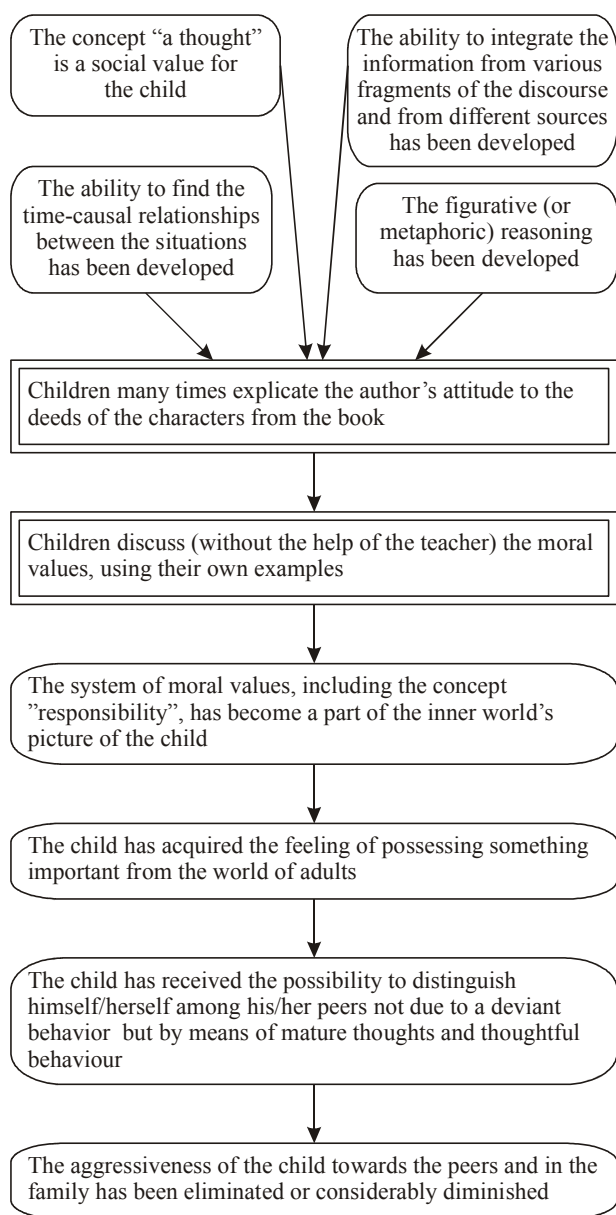


Figure 3: Second year of forming a cognitive-emotional subspace of moral values and social responsibility.

him/her think that it may be an illusion, and everything is not so bad, and it is necessary to step aside and look at this situation from some distance.

It is the process of establishing a link between the constructed mental representation of the seen pictures and the constructed inner visual image of the life situation. The suggested conclusion: no panic, no chaos, no black situations. It is not passive reflection, it is an active transfiguration that makes the life brighter, stimulates a creative response to it.

Another important discovery done by children is connected with the possibility to view the world in a different way and to notice the transient appearance of one and the same object depending on various things.

The ability to see ordinary things in a new way stimulates curiosity and desire to reveal personal perception. It reveals the ability of the child to view the world actively, creating his/her own images, metaphors, corresponding to his/her conceptual picture of the world.

For instance, children are asked to describe the lilies in the pond or the pond itself. The following descriptions were given by children.

**Example 1** (a girl, 6 years old): “Near the castle, there was an old park with wide spreading trees and a pond with white lilies. At dusk, lilies are falling asleep, and it seemed that someone had eaten whipped cream from the blue cap of the pond”.

**Example 2** (a boy, 7 years old): “At night the pond looked like a mirror reflecting bright sparkling stars, and it seemed that one could scoop out a bucket full of stars”.

**Example 3** (a girl, 7 years old): “At dusk, the pond is fringed with silvery light and looks like an ancient looking glass of the moon being lost by carefree crescent”.

The images of the pond are rooted in the own life experience of eating whipped cream or noticing the reflections of the starlet sky in bucket, barrel, or well in the country or playing with a grandmother’s looking glass in the silver frame.

Such kind of work proves the importance of the impression as a bright flash evoking emotions, making clear various links between different domains.

### 11 How to Make Feelings Become the Subject of the Thought

Though impression is formed without conscious thought or specific knowledge, the child should be taught to analyse his/her impressions, to appreciate them. Impression is a kind of impulse sent by the outer world and accepted by the child unconsciously. Impressionism aimed at revealing impression. It provides the splendid opportunity to see the world with the eyes of the painters who were deeply impressed by it and elaborated a special language to express the admiration or just a way of viewing. Such kind of approach to studying impressionism leads to analysing the accepted impulse, it leads not only to emotional response but also to intellectual response. Feelings are becoming the subject of the thought. It may prevent children from impulsive

decisions caused by the first impression that looks like an emotional attack.

In the information society, the possibility of such unexpected emotional attacks by social nets is increasing. The way impressionism is taught under the frame of cognitronics is one of the keys to the solution to this problem, because of constructing the mental representation of what is called “the illusion of white lilies”.

## 12 The Cross-Disciplinary Course “Foundations of Secure Living in Information Society”

The information society we live in has its peculiarities, advantages, and disadvantages, as any other society. In order to speak about successful socialization of children and teenagers, it is necessary to make children understand the ways of living, participating in the social networks, communicating via e-mail, taking on-line courses, receiving information, etc. They should know how to avoid negative “digital” situations or overcome them, how to distinguish virtual reality and emotions caused by that virtual reality from the real life and emotions caused by that life.

Children should be aware that in both cases they should be ready to suffer the consequences of their careless behaviour or ignorance. Children should be taught the rules of acting in the digital space, paying special attention to the moral standards, lest they should hurt somebody’s feelings while communicating with the help of informational technologies (IT). They should understand the power of IT and the responsibility of the users. The teachers should find a correspondence between situations taking place in the real life and similar situation from the virtual reality.

For example, if someone reveals aggression in any way, he/she can suffer the same aggressive feedback, can be hurt. In case of the digital space, not a child or a teenager him/herself is hurt and experiences pain, but his/her feelings are hurt and his/her reputation is in danger because of the quickly spread negative information.

The core idea of the course “Foundations of secure living in information society” is the same for real and virtual life: treat others the way they want to be treated, show compassion and consideration, learn from success and failures, appreciate learning opportunities, etc.

But children should be aware of the difference between person-to-person communication and person – digital environment – person communication, because the digital environment has its own power that can enhance the communicative (and any other) situation.

The goal of the course is to contribute to successful socialization of children and teenagers in the information society. The subject of the course is to introduce students into the digital space, paying special attention to ethics, to the rules of interaction and communication.

Students acquire knowledge of what is strongly prohibited and what kind of behaviour is expected. The

course shows the clear difference between virtual reality and reality and establishes correspondence between the ways of perception by people of various situations happened in digital space and real life, on the one hand, and the possible consequences caused by that difference.

The idea of this cross-disciplinary course and ethical approach to its development are suggested under the frame of cognitronics.

## 13 An Algorithm of Transforming Negative Emotions into Positives Ones

Let us consider the possible reactions of a human (including the recommended reactions) to the so called emotional attacks via social networks. An analysis of the kind could be introduced into the program of the course “Foundations of secure living activity in information society”.

### *Head Module of the Algorithm*

#### *”Processing Messages from Social Networks”*

*begin*

*If* the first impression (a strong one, it can be either true or false) is POSITIVE then Procedure 1

*else* { the first impression is NEGATIVE}

Procedure 2

*end*

#### **Description of the Procedure 1**

*begin*

Make conclusion 1: no harm at the moment of getting an impression;

Make conclusion 2: the feelings are not hurt;

Make conclusion 3: The situation is over

*End*

#### **Description of the Procedure 2**

{The condition of calling this procedure: the first impression is NEGATIVE, that means that the impression causes panic, confusion at the moment of getting it}

*begin*

FIRST AID: a reminder of the white lilies on the canvas by Claude Monet (if the mental representation is strong and clear);

Make conclusion 1: It is a situation of uncertainty, not apparently a bad one;

Make conclusion 2: The situation needs reflecting, reasoning;

Start some kinds of intellectual activity, thinking over the situation and diminishing emotional activity;

A little later make conclusion 3: The situation is getting much more balanced, less harmful;

Make conclusion 4: The situation is turning into an intellectual riddle;

Make conclusion 5: Now the situation causes another kind of emotions, they are based on the feeling of curiosity;

Make conclusion 6: A situation of another kind has emerged, it aims at solving the riddle



{the transformation of the emotions into the positive ones is over}

End

## 14 Conclusion

Our study started in early 1990s and including both theoretical and practical aspects has shown that the objectives of cognitronics concerning educational practice are realistic. In particular, taking into account the dangerous sides of acquainting socially immature children (including teenagers) with modern informational technologies, we argued in this paper the necessity of looking from new positions at the problem of early children's socialization in the computer age. Our vast experience has shown that it is possible to do a lot for eliminating or considerably diminishing the aggressiveness of children, using traditional teaching materials (the fairy-tales, thrilling stories, etc.) but in a new way: extracting from these sources the attitude of the author to the deeds of the characters from the text and forming step by step the cognitive subspace of moral values and social responsibility. The essence of our approach to early socialization of the child was explicated with the help of three maps of cognitive transformations (MCT). It seems that the notation of MCT will be of help for the scholars elaborating the methods of contributing to the well-balanced, harmonic development of the personality in information society.

The development of civilization is the endless process of challenges and answers. Internet, new informational technologies are a challenge. It is not only an intellectual challenge but a spiritual challenge as well. The illusion of the true existence of the Cyberspace gives birth to new kinds of emotional attacks via e-mail, social nets, and cell telephones. It is difficult to resist these attacks, because lots of teenagers and grown-ups become aware of the information together with the attacked child.

Impressionism as a manner of painting, rooted in the idea of the first impression, being taught under the frame of cognitronics helps to construct the vivid mental representations of the illusive situations in the minds of children and teenagers. The example considered in this paper is positive, impressive, and it is based on children's life experience (they acquired it while watching the painting). On the other hand, they have already thought about their own examples taken from the real life: one child is sure that the dog is angry, because it barks; another child says that his particular dog is kind, because it wags its tail every time the child sees it.

To make children and teenagers understand how the illusion and first impression work, explaining to them emotional constituent of these notions, providing them with thrilling and clear examples is very important, especially in the information society when they deal not with one partner of communication but with many partners from the nets.

People communicating via social networks don't take into account the child's mood, character, the events of the day, child – parents relationships at the moment,

background of the child. New possibilities of ICT demand much more developed ability of the child to resist to any reply or replies, much stronger confidence in oneself, and clear understanding how the illusion works.

We know that the lilies on the pond are white, but, in fact, there are no white lilies in the pond: everything depends on the maturity of the viewer.

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