Editors's Introduction to the Special Issue on "The Human Being in the Digital World"

The stormy progress of information and communication technologies (ICT) since the end of the 1980s has wonderfully changed not only professional but also every-day life of very many people in the world. Now it is possible to speak with a friend across an ocean and to see your friend; due to cell telephones, the mothers are able to immediately find out what and where their children are doing; we do have the possibility to obtain in several minutes the e-versions of thick books stored thousands miles away from our terminals, etc.

However, during last decade many scholars from different countries have observed and discussed a number of negative tendencies in the development of the personality and society caused by the expansion of ICT and globalization processes. The authors of the papers presented below look for constructive ways of contributing to harmonic development of the personality in modern information society. The common feature of the papers is that they either relate to the new scientific discipline called Cognitonics or correspond to its goals.

Cognitonics is a new scientific discipline emerged in the first half of the 2000s (its prenatal stage of development covers the years 1993 – 2003). It aims (a) at explicating the distortions in the perception of the world caused by the 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 of the kind for the personality and society, in particular, for creating cognitive-cultural preconditions of the harmonic development of the personality in the information society and for ensuring the successful development of national cultures and national languages.

The birth of Cognitonics was stimulated by the ideas of Philosophy, Cognitive Linguistics, Artificial Intelligence theory, Web Science, Applied Linguistics, Art theory, Cognitive Psychology, and Cognitive Biology.

Two factors seem to be especially important from the standpoint of achieving the goals of Cognitonics:
- information and communication technologies have been developing extremely quickly and have been expanding unusually broadly, they penetrate not only into every office and laboratory but also into every school class and every family;
- it is necessary and promising to use the power of modern ICT in order to very quickly and broadly disseminate the elaborated effective methods of compensating the negative distortions in the development of the personality and of national cultures in information society.

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.

Overview of the issue

This special issue of Informatica – an International Journal of Computing and Informatics contains 6 papers submitted by the researchers from two continents (Europe and North America) and 6 countries: Croatia, Italy, Mexico, Poland, Romania, and Russia. The papers were carefully selected on the basis of peer reviews. The authors of four from six papers use the advantages of modern ICT for constructively contributing to the harmonic development of the personality in modern information society.

The title of the first paper is "A Contribution of Cognitonics to Secure Living in Information Society" (V.A. Fomichov and O.S. Fomichova, Russia). The paper sets forth the weighty arguments in favour of much earlier socialization of children in the Internet age. The first goal of the described study is to make children (including teenagers) be aware of possible social consequences of their misuse of ICT, in particular, of the cell telephones and the Internet. The second goal is to find a way of inscribing into the conceptual picture of the young child of the respect to the ideas formulated by another person's. An original approach to early forming the cognitive subspace of moral values and social responsibility is proposed. 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. The next subject of the paper is 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".

The subject of the paper "Information Technology for Management and Promotion of Sustainable Cultural Tourism" (M. Valčić and L. Domšić, Croatia) is the use of intelligent ICT solutions in the development of heritage tourism. The aim is to contribute to preserving national culture, creating partnership and enhancing

destinations value in information society. The authors propose a model for local Destination Management Systems of heritage destinations (DMS), the purpose is to help to achieve a more globally responsible paradigm for the tourism industry and facilitate the management of destinations and the coordination of the local suppliers. DMSs provide interactive demonstrations of local amenities and attractions and enable consumers to build their own itinerary based on their interests and requirements. Under the framework of this approach, all the stakeholders within the destination are linked with each other in order to create collaborative action and a genuine, sustained growth in heritage tourism. The paper analyzes, as an example, the Croatian World Heritages Sites and their status on the Web.

The paper "Linguistic Model Propositions for Poetry Retrieval in Web Search" (M. Granos and A. Zgrzywa, Poland) excellently corresponds to a new, large-scale goal formulated by Cognitonics for the software industry and Web science. This goal is to develop a new generation of culture-oriented computer programs and online courses (in the collaboration with educators, linguists, art historians, psychologists) - the computer programs and online courses intended for supporting and developing positively-oriented creativity, cognitive-emotional sphere (in other words, emotional intelligence), the appreciation of the roots of the national cultures, the awareness of the integrity of the cultural space in the information society, and for supporting and developing symbolic information processing and linguistic skills, associative and reasoning abilities of children and university students.

The paper grounds the importance of constructing the advanced exploratory search engines, which, according to the Maslow's hierarchical pyramid of needs, address the needs of higher order associated with self-fulfillment and satisfaction of informational-cognitive aesthetic ambitions of non-verbal transmission. A number of linguistic models for poetry retrieval purposes are studied.

The paper "The Experiences of Landscape Social Per-ception as a Remedy for Plunging into Virtual Reality" (R. Micarelli and G. Pizziolo, Italy) proposes a possible answer to the question "How to prevent young people from plunging into virtual reality"? It is a very socially significant question, because numerous observations in different countries have shown that plunging into the virtual life prevents people (especially young people) from solving real life problems, from establishing social relations with the people around them, and often causes breaking family ties and other social ties. Usually, a person being carried away by virtual reality is unsuccessful in solving the problems of real life (if some external circumstances force he/she to do it).

The paper "Using M Tree Data Structure as Unsupervised Classification Method" (M.C. Mihăescu and D.D. Burdescu, Romania) describes a new theoretical and practical approach to the problem of automatically providing information to the students and course managers regarding the knowledge level reached by the students. The purpose is increasing the effectiveness of educational processes. The proposed approach is based on the usage of M Tree structure for classification of the learners based on their final marks obtained in their respective courses. The classical building algorithm of M-Trees with an original accustomed clustering procedure was implemented. The data that are managed within M Tree structure are represented by the instances. A baseline classification scheme based on k-means clustering and a custom M Tree clustering are presented. For comparison, the classical characterization formulas are considered.

The subject of the paper "Computer-Aided Educational Intervention in Teenagers Via Internet Social Networking" (M. G. Velázquez-Guzman and F. Lara-Rosano, México) is the experience of contributing to forming the new citizens but not only to teaching mathematics, languages, and other disciplines. The authors of the paper underline that new citizens should be critical and creative social actors participating in the construction of better ways of coexistence. As a possible way of achieving this goal, the paper proposes educational strategies based on the use of Internet social networking sites as Facebook®, Twitter® and MySpace®. These described strategies must enhance the social development of the students, taking into account their peers' subculture.

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Guest Editors